

Undergraduate
Programs
1973-74



SGMU

1973

January

S	M	T	W	T	F	S
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1974

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Undergraduate Programs

1973-74

Sir George Williams University
Montreal 107, Quebec

The New University

The new two-campus university, resulting from the fusion of Sir George Williams University and Loyola College, will have become a reality by the beginning of the 1973-74 academic year. It was not possible at the time *Undergraduate Programs 1973-74* went to press to give details of any opportunities there may be in the first year of the new university for students on one campus to take courses at the other. We have therefore listed only these courses and programs that are available to students on the Sir George Williams campus. However, we expect that in future years there will be extensive opportunities for students to benefit widely from the combined resources of the entire university

This announcement has been prepared months in advance of the academic year 1973-74 and information contained herein is subject to change. For information concerning collegial and graduate programs as well as class schedules, contact the Records Office, 1st floor, 1435 Drummond Street.

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The University

Sir George Williams University

Sir George Williams University is located in downtown Montreal. The Hall Building, opened in 1966, is at 1455 de Maisonneuve Boulevard; the Norris Building is at 1435 Drummond Street. The university also occupies a number of smaller buildings and rented premises in the immediate neighbourhood.

There are four faculties: Arts, Science, Commerce and Administration, and Engineering; all grant undergraduate degrees. Present graduate degrees are Master of Arts, Master of Science, Master of Engineering, Master of Business Administration and Master in Teaching Mathematics, as well as Doctorates in Economics, History, Humanities, Chemistry, Physics and Engineering. Over a transitional period the university has offered a two-year collegial-level (CEGEP-parallel) program in the day division only.

Applications for entry into Collegial II in September 1973 are still acceptable.

In the 1972-73 academic year enrolment was 5,663 collegial-level and undergraduate students in the day division, 7,002 evening undergraduate students, 2,163 evening partial students, and 1,400 graduate students. In 1971-72 the university introduced in both day and evening divisions a new undergraduate program normally of three years' duration. Entry requires completion of the Quebec CEGEP program or the equivalent. However, there exists a special preparatory program for evening division students who have not graduated from the collegial level. To be admitted to this program students must have passed their 21st birthday prior to registration for the academic year in which they enroll.

Day and evening undergraduate degrees are equivalent. The programs are the same, and are given largely by the same Faculty.

Laboratories

The university has approximately 100 laboratories with modern equipment for teaching and research in Biology, Chemistry, Physics, Engineering, Statistics, Psychology, Geography and Languages.

Computer Centre

The main installation in the Computer Centre is a Control Data Corporation 3300 digital computer, modern, time-sharing equipment. The centre itself is located outside the university but there are remote terminals in each of the main university buildings. In addition, auxiliary computers and electronic calculators are available for the use of faculty and students, and the centre maintains two statistics laboratories.

Studios

Eight art studios are available for work in Fine and Applied Art.

Auditoria

A total of ten auditoria ranging in size from 100 to 700 seats are located in the Henry F. Hall and K.E. Norris Buildings. Those in the Hall Building are equipped with audio-visual installations and are tied in with the internal television network.

Art Galleries

The collection of art, which was started in 1962, now consists of close to 300 works. They represent a wide variety of modern schools, with particular emphasis on Canadian art.

Theatres

The Douglass Burns Clarke Theatre has a seating capacity of 370. It is the home of the Theatre Arts Section and student productions are given regularly through the academic year. In addition the Birks Auditorium, located in the Norris Building is equipped with stage, dressing-rooms and scene shops.

Libraries

The Sir George Williams University library collection now contains some 400,000 books, periodicals, microforms and audio-visual materials, and is growing at a rate of about 50,000 items a year. The Main Library is located in the Norris Building; the Science and Engineering Library on the tenth floor of the Hall Building.

Food Services

The main cafeteria is located on the seventh floor of the Hall Building. There is a snack bar on the second floor of the Norris Building. Facilities are also available for banquets, teas, meetings, parties and dances. For further information, contact the banquet manager, located on the seventh floor of the Hall Building.

Centre for instructional Technology

In the planning of the Hall Building special attention was paid to the development of audio-visual facilities. These include a professionally equipped television studio, a closed circuit television studio, a closed circuit television system serving all classrooms and auditoria, language laboratories with a carrel study room for electronic media. The equipment is under the control of the Centre for Instructional Technology, which is developing a comprehensive program in instructional communications. In addition, the Centre and the university's Department of Education jointly offer a graduate program in Instructional Technology.

Student Union

A student union with snack bar facilities located at the south-west corner of de Maisonneuve and Crescent Street offers student and outside entertainment in a basement coffee house. In addition, there are lounges and study rooms. The Union is operated by the Students' Association.

University Bookstore

Books and supplies, including art materials, may be bought at the University Bookstore, located on the mezzanine of the Hall Building. From the first of September until the middle of October a self-service arrangement exists in the Birks Auditorium on the main floor of the Norris Building. (Students are reminded to consult a booklist to ensure the correct edition before purchasing).

Continuing Education

The university has introduced a new departure in university level programs under the general heading Continuing Education. Continuing Education is currently developing courses in the following areas

Off-campus credit courses

Courses specifically oriented towards the professional development of teachers, social and community workers and general interest courses selected from the regular undergraduate programs are given off-campus to meet the needs of communities in and around the Montreal area.

The time-table is determined each summer for the following fall/winter session

Non-credit programs

The following programs are specifically oriented towards the professional development of those involved in business and industry: Diploma In Advanced Real Estate; Diploma In Statistics (certain specified courses may count as undergraduate credits); Executive Development Seminars

Continuing Education also offers the following general interest programs: Studies In Armenology - a series of courses designed in conjunction with the Tekeyan Armenian Cultural Association of Montreal and partially sponsored by the Ethnic Minority Program of the Department of the Secretary of State of Canada; Music - a music education program offered in conjunction with the Montreal Symphony Orchestra; Complete Computer Electronics - a self-study course in computer electronics offered in conjunction with the National Radio Institute; History Of Cinema and A Practical Course In Film Making - two courses offered in conjunction with the Conservatory of Cinematographic Art.

The above are on-going programs offered throughout the year

Interested applicants are urged to contact the Continuing Education office for further details

Calendar of Events

1973

Thursday, March 1	Program planning begins
Monday, May 28	Registration begins - Evening summer session
Friday, June 1	Registration closes - Evening summer session
Friday, June 1	Last day for applications - Evening division (1973-74)
Monday, June 4	Classes begin - Evening summer session
Monday, June 4	Evening courses change period begins
Friday, June 8	Evening courses period ends
Friday, June 8 5:00 p.m.	Last day for financial adjustments to contracts (Summer session)
Sunday, June 10	Spring convocation
Thursday, June 14	Last day for supplemental examinations applications
Sunday, June 24	St. Jean Baptiste Day
Friday, June 29	Program planning ends
Sunday, July 1	Dominion day
Wednesday, July 4	Last day for academic withdrawal - Evening summer session
Wednesday, July 18	Supplemental examinations begin
Saturday, July 28	Supplemental examinations end
Thursday, August 2	Classes end - Evening summer session
Monday, August 6	Examinations begin - Evening summer session
Friday, August 10	Examinations end - Evening summer session
Monday, August 20	Registration for enrolled students begins
Thursday, August 23	Registration for enrolled students closes
Monday, August 27	General registration begins
Monday, September 3	Labour day - University closed
Friday, September 7	General registration closes - NO LATE REGISTRATION
Monday, September 10	Classes begin - Day and Evening divisions
Monday, September 10	Course change period begins
Monday, September 21	Course change period ends
Saturday, September 22	Last day for financial adjustments to contracts (1973-74)
Monday, October 8	Thanksgiving day - no DAY classes
Thursday, November 1	Last day for academic withdrawal from first term half courses
Monday, November 5	Last day for applications - supplemental examinations for Summer Session
To be announced	Fall convocation
Saturday, December 1	Supplemental examinations - Summer Session
Saturday, December 8	Last day of classes - first term
Saturday, December 8	Mid-term and first term final examinations Day and Evening divisions
Saturday, December 22	Examination recess for holiday

1974

Thursday, January 3	Examinations recommence
Saturday, January 5	Examinations end
Monday, January 7	Classes begin - second term

Monday, January 7	Course change period begins for courses offered only in the second term
Friday, January 11	Course change period ends
Monday, February 18	Seminar Day - No classes
Tuesday, February 19	Seminar Day - No classes
Friday, March 1	Last day for academic withdrawal from full courses and second term half courses
Friday, March 1	Last day for application to Day University (1974-75)
Monday, March 11	Last day for applications - first term supplemental examinations - graduating students only
Saturday, March 23	First term supplemental examinations - graduating students
Monday, April 1	Last day for applications to Evening Summer University
Tuesday, April 9	Last day of classes - second term
Tuesday, April 16	Final examinations begin - Day and Evening Division
Wednesday, May 1	Final examinations end
To be announced	Spring convocation
Friday, June 1	Last day for application to Evening University (1974-75)
Thursday, June 13	Last day for supplemental examination applications

Tentative Examination Timetable

1. Each lecture block has been assigned an alphabetical code.
2. All examinations in one time block will normally be written at the time assigned. However, some courses with multi sections may be removed and placed in one of the common blocks while others may be removed for academic or administrative reasons and placed in a special time block.
3. Students are reminded that it is the instructor's prerogative to establish his method of course evaluation; therefore, it is quite probable that many courses will not hold official examinations.
4. It is recommended that students avoid making other commitments during the examination periods until the official timetable is posted one month prior to the beginning of examinations.

Coding

MWF	8:45-9:35 a.m.	A
MWF	9:50-10:40	B
MWF	10:55-11:45	C
MWF	12:00-12:50 p.m.	D
MWF	1:05-1:55	E
MW	2:10-3:25	F
MW	3:45-5:00	G
TT	8:45-10:00 a.m.	H
TT	10:15-11:30	I
TT	11:45-1:00 p.m.	J
TT	1:15-2:30	K
TT	2:45-4:00	L
TT	4:15-5:30	M
Mon	6:15-8:10 p.m.	N
Tues	6:15-8:10	O
Wed	6:15-8:10	P
Thurs	6:15-8:10	Q
Fri	6:15-8:10	R
Mon	8:30-10:25	S
Tues	8:30-10:25	T
Wed	8:30-10:25	U
Thurs	8:30-10:25	V
Fri	8:30-10:25	W
Sat	8:45-10:40 a.m.	X
Sat	11:00-12:50 p.m.	Y

Christmas Examinations

	Morning	Afternoon	Evening
Sat, Dec. 8	Com	Com	
Mon, Dec. 10	A	Special	N
Tues, Dec. 11	I	E	O
Wed, Dec. 12	B	Special	P
Thurs, Dec. 13	J	Special	Q
Fri, Dec. 14	C	G	R
Sat, Dec. 15	X-Com	Y-Com	
Mon, Dec. 17	D	Special	S
Tues, Dec. 18	K	Special	T
Wed, Dec. 19	F	M	U
Thurs, Dec. 20	L	Special	V
Fri, Dec. 21	H	Special	W
Thurs, Jan. 3	Special	Special	Common
Fri, Jan. 4	Special	Special	Common
Sat, Jan. 5	Special	Special	Special

April 1974

	Morning	Afternoon	Evening
Tues, Apr. 16	A	Special	Com
Wed, Apr. 17	I	E	P
Thurs, Apr. 18	B	Special	Q
Fri, Apr. 19	J	Special	R
Sat, Apr. 20	Com	Com	
Mon, Apr. 22	C	Special	S
Tues, Apr. 23	K	G	T
Wed, Apr. 24	D	Special	U
Thurs, Apr. 25	L	Special	V
Fri, Apr. 26	F	Special	W
Sat, Apr. 27	Common	Common	
Mon, Apr. 29	H	Special	N
Tues, Apr. 30	M	Special	O
Wed, May 1	Special	Special	Com

Governors, Councils, Faculty, Staff

Board of Governors

Chancellor: C.F. Carsley, B.A.
Chairman: C. Alec Duff, B.Sc.
Vice-Chairman: Edmond A. Lemieux, C.A.
Secretary: William M. Reay, C.A.

Donald R. Bannerman, B.A.
 Jack Bordan, B.Eng., M.Sc.Eng., M.E.I.C.
 Jock K. Finlayson
 John R. Hannan, B.Com., B.A., B.C.L.
 Robert H. Hoppe, F.C.I.S.
 Stephen Huza
 Theodore D. Lande, B.Sc.Com., F.R.A.S.
 Moses Levitt, B.Com.
 James F. Lindsay, B.Sc., Eng
 Peter F. McEntyre, B.Com., C.A.
 George W. Millar
 Danny Moore
 Joseph Novak
 John W. O'Brien, Ph.D
 Alfred Pinsky
 Calvin C. Potter, B.Sc. (Com.), M.Com., Ph.D.
 Hubert Prescod
 C. Shekher
 John E. Skinner, B.Com.
 William D. Small, B.Com., C.A., C.F.A.
 John Smola, Ph.D
 Jane Stewart, B.A., Ph.D.
 John W. Tait, C.A.
 Henry Valle
 Roger Verschingel, B.Sc., Ph.D.
 E. Paul Zimmerman
 Melvin C. Zwaig, B.Com., C.A.

University Council

Jack Bordan, *Chairman*
 Robert Fraser, *Secretary*

Kenneth Adams	Anthony Hilton
Bobbi Aronovitch	Helen Howard
Andrew Berczi	Horst Hutter
Victor Byers	Vishnu Kirpalani
J. Clair Callaghan	Peter Kontakos
Ian Campbell	Gerard Leduc
Doug Cavill	James Lindsay
David Charlton	James McBride
Edwy Cooke	R.D. McDonald
Charles Davis	John W. O'Brien
James Dennis	Robert Phaneuf
C. Alec Duff	Zoltan Popp
Morne du Plessis	David Saskin
Magnus Flynn	John Ufford
Wynne Francis	James Whitelaw
Martin Franklin	One Evening Student
Stanley French	to be appointed

Council of the Faculty of Arts

Dean Ian C. Campbell, *Chairman*

Gerald Auchinachie, *Secretary*

Margery Allen	R.D. McDonald
Roger Angel	David Miller
Harold Angell	P. David Mitchell
Muriel Armstrong	Danny Moore
Bobbi Aronovitch	Joseph C. Mouledoux
Roslyn Belkin	John W. O'Brien
Jitendra Bhatnagar	Guy Ouellet
Jack Bordan	Edward Pechter
Gary Boyd	Lewis Poteet
June Chaikelson	Michael Radford
Wade Chambers	Solomon J. Rawin
Edwy Cooke	Stephen Scheinberg
Paul d'Hollander	Lalita Singh
Charles Davis	Bruce Smart
Michel Despland	Joseph Smucker
Donald Fraser	Jane Stewart
Marjorie Gawley	Richard Stetei
Thomas Gray	Rytza Tobias
John Hill	Robert Wall
Frederique Jackson	Paul Widdows
Christopher-Gabriel Lacki	Vladimir Zeman
Arthur Lermer	Two Evening Students
Claude Levy	to be appointed
Gerald Mahoney	One Graduate Student
James R. McBride	to be appointed

Council of the Faculty of Commerce & Administration

Dean Andrew Berczi, *Chairman*

Wolfram Pietzsch, *Secretary*

Margery Allen	Giorgio Pederzoli
Jack Bordan	Robert Phaneuf
Kailash Dhawan	Werner Pluss
Adam Dickie	Calvin Potter
Frank Dougherty	Charles Primeau
Jim Green	Barry Rosenfeld
Mike Heath	Samuel Silverton
Vishnu Kirpalani	Bruce Smart
George Lane	R. Sweitzer
Harvey Mann	Henry Tutsch
Brian Markland	Roland O. Wills
James McBride	One Evening Student
John W. O'Brien	to be appointed

Council of the Faculty of Engineering

Dean J. Clair Callaghan. *Chairman*

F. A. Gerard. *Secretary*

Mohamed Abouqabal

Kenneth Adams

B. Bhattacharrya

Frederick Blader

Jack Bordan

Morne du Plessis

Paul Fazio

Charles Giguere

Serge Gracovetsky

F. Douglas Hamblin

H. Stanley Heaps

Helen Howard

Clyde Kwok

James F. Lindsay

Bela Lombos

Cedric Marsh

Jerome Martynko

Hugh McQueen

John W. O'Brien

Oscar Pekau

Thiagas Sankar

M.N.S. Swamy

Michael Troitsky

Z.A. Zielinski

One Day Student

to be appointed

One Evening Student

to be appointed

Council of the Faculty of Science

Dean John R. Ufford. *Chairman*

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Thomas Adley

Fred W. Bedford

Peter A. Bird

Jack Bordan

Joseph Brody

Victor Byers

Andre Deland

Henry de Romer

Nelson Eddy

Marjorie Goodfellow

Arlin Kipling

Gerard Leduc

Franklin MacLeod

Mohd Malik

James R. McBride

Sushil Misra

John W. O'Brien

John Senez

Thomas Swift

Roger Verschingel

Muhammed Zaki

Student Representatives

Allan Fraser (Graduate)

Carl Kalman (Day)

Sandra Schecter (Day)

Two evening students

Principal Officers

<i>Principal</i>	John W. O'Brien, Ph.D.
<i>Assistant to the Principal</i>	Michael Sheldon, M.A.
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<i>Publications Officer</i>	Joel McCormick
<i>Development Officer</i>	Brian Selwood
<i>Research Officer</i>	Audrey Williams, M.Sc.
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<i>Assistant Dean</i>	A.D. Insleay, M.Sc.
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<i>Assistant Vice-Principal,</i> <i>Administration</i>	A.J. Laprade, B.Eng.
<i>University Auditor</i>	Claude M. Dallaire, B.Com., M.B.A.
<i>Manager, Food Services</i>	to be appointed
<i>Director of Personnel</i>	John L. Hall, B.Sc.
<i>Assistant Director of</i> <i>Personnel</i>	James Harford, B.Com.
<i>Personnel Officer - Benefits</i>	Colin Waters, B.Sc. (Com.)
<i>Personnel Officer -</i> <i>Employment</i>	Nelson T. Gibeau, B.A., L.S.Pd.
<i>Director of Guidance</i>	J.A. Sproule, M.Ps.Sc.
<i>Assistant Director of</i> <i>Guidance</i>	F.W. Denton, M.A.
<i>University Librarian</i>	to be appointed
<i>Assistant University</i> <i>Librarian for Public Services</i>	Marjorie Goodfellow, M.L.S.

<i>Assistant University Librarian for Technical Services.</i>	Margery Allen, B.L.S.
<i>Collections Coordinator.</i>	Michael Hood, B.L.S.
<i>Assistant Vice-Principal, Administration, Communications and Director of Computer Centre.</i>	Graham Martin, M.Sc., Eng.
<i>Manager of Operations.</i>	Ivan Fuchs, B.Sc.
<i>Manager, Administrative Services.</i>	Wilfred McManus, B.A., B.Com.
<i>Manager, Academic Services</i>	Vincent McLeod, B.A.Sc.
<i>Director, Centre for Instructional Technology.</i>	to be appointed
<i>Assistant Director, Centre for Instructional Technology.</i>	Bernard Queenan, M.A., M.Ed.
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- Rouse, Raymond F., B.A. (S.G.W.), *Lecturer in Applied Social Science*
- Ruber, Hans, B.Sc. (S.G.W.), M.F.S. (Yale), *Lecturer in Botany*
- Rutledge, Vera, B.A. (Toronto), *Lecturer in English*
- Sachs, Pamela, *Lecturer in English*
- Sanchez, M.F., Ph.D. (Habana), *Lecturer in Spanish*
- Savary, C., B.A., B.Ed., M.A., Ph.D. (Montreal), *Lecturer in Philosophy*
- Scarpaleggia, M., B.Sc. (Loyola), M.B.A. (Columbia), *Lecturer in Management*
- Schaule, Hans G., B.Eng. (Munich), M.B.A. (S.G.W.), *Lecturer in Management*
- Schechter, Stephen B., B.A. (McGill), Ph.D. (London), *Lecturer in Sociology*
- Schwartz, D., B.A. (Queen's), B.C.L. (McGill), L.L.M. (Harvard), *Lecturer in Engineering and Political Science*
- Schwartz, Harry H., B.RE.E. (McGill), M.S. (M.I.T.), *Lecturer in Mathematics*
- Seaman, A. Ross, B.A. (S.G.W.), M.Ed. (Springfield), *Lecturer in Applied Social Science*
- Searle, John D., B.Sc. (Rensselaer Polytechnic), *Lecturer in Sociology*
- Selvig-George, Edna, B.S. (Minnesota), M.A. (Sacramento), *Lecturer in English*
- Serruya, Charlotte, B.A. (S.G.W.), *Lecturer in French*
- Seigny, Pierre, B.A., B.Com. (Laval), *Lecturer in Finance*
- Sharp, John F., B.Sc. (British Columbia), M.Sc. (Toronto), M.B.A. (Western), *Lecturer in Quantitative Methods*
- Sharp, Marjorie, B.A. (S.G.W.), B.C.L., L.L.B. (McGill), *Lecturer in Management*
- Shasha, Nissim, B.Sc., M.E., Ing. Dipl. (Technion), M. Eng. (S.G.W.), *Lecturer in Engineering*
- Shlosser, Edith F., B.A. (S.G.W.), M.A. (McGill), *Lecturer in Classics*
- Shohet, Linda, B.A., M.A. (McGill), *Lecturer in English*
- Shoub, Bernard, B.Sc. (McGill), M.T.M. (S.G.W.), *Lecturer in Mathematics*
- Silas, Mary, B.A., M.A. (McGill), *Lecturer in English*
- Silver, Vivian, B.A. (McGill), *Lecturer in English*
- Simon, Shoshana, B.A. (Hebrew), *Lecturer in Hebrew*
- Sinclair, Peter, *Lecturer in Education*
- Sirsly, Claude E., B.A. (Loyola), M.B.A. (S.G.W.), *Lecturer in Marketing*
- Shekher, Chandra, B.Eng. (India), M.Eng. (Halifax), *Lecturer in Computer Science*
- Skelly, William, B.Com., M.B.A. (S.G.W.), *Lecturer in Accountancy*
- Spiro, Rabbi Solomon J., B.Sc., M.A. (S.G.W.), *Lecturer in Religion*
- Srivastava, Prem, B.Sc., M.Sc. (Lucknow), M.Sc. (McGill), *Lecturer in Geology*
- Steiner, Emery S., B.Com. (S.G.W.), C.A. (McGill), *Lecturer in Accountancy*
- Strei, Gerald, B.A. (Minnesota), M.A. (McGill), *Lecturer in English and Spanish*
- Subirana, Cynthia, B.Mus. (Toronto), *Lecturer in Music*
- Surrey, Philip, *Lecturer in Art*
- Sutherland, E. Ann, B.Sc. (Rochester), *Lecturer in Psychology*
- Svistunenko, Juris, B.Eng. (McGill), M.B.A. (Western), *Lecturer in Management*
- Swibold, Susanne, B.F.A. (Chicago), M.F.A. (Michigan), *Lecturer in Art*
- Takach, L., *Lecturer in Geography*
- Terroux, Georges, B.A. (Loyola), M.A. (Essex), Ph.D. (Montreal), *Lecturer in English*
- Tobber, Petra, B.Sc. (S.G.W.), *Lecturer in Administration*
- Tolosa, Janet, *Lecturer in English*
- Tooby, Norman D., B.Com. (S.G.W.), *Lecturer in Accountancy*
- Townsend, David F., B.Com. (S.G.W.), *Lecturer in Quantitative Methods*
- Tramontana, V., A.B. (N.Y.S.), M.A. (S.U.N.Y.), *Lecturer in Sociology*
- Trask, Frank S., B.A. (Acadia), B.Com. (S.G.W.), *Lecturer in Quantitative Methods*
- Tschimmel, Udo Paul, B.A. (TH Aachen), *Lecturer in German*
- Turpin, Gisele, *Lecturer in French*
- Usher-Jones, Brian E., B.Com. (S.G.W.), C.A. (McGill), *Lecturer in Accountancy*
- Valaskakis, Kiman, B.A. (American), Ph.D. (Cornell), *Lecturer in Economics*
- Valentine, Ronald W., B.Eng. (McGill), M.B.A. (Harvard), *Lecturer in Management*
- Vallejo, Irene, B.A. (S.G.W.), *Lecturer in Spanish*
- Vandycke, Jacqueline, *Lecturer in French*
- Van Toch, Lila, Lic. ès Lettres (Lille), M.A. (Durham), *Lecturer in French*
- Van Toorn, Peter, B.A. (McGill), *Lecturer in English*
- Varma, N., M.A.Sc. (Waterloo), *Lecturer in Management*
- Verma, S.N., B.E., M.E. (Jabalpur), *Lecturer in Computer Science*
- Wagschall, Marian, B.A. (S.G.W.), *Lecturer in Art*
- Walker, Jeremy, B.A., M.A. (Oxford), *Lecturer in Philosophy*
- Ward, Donald A., B.Sc. (Alberta), M.B.A. (Western), *Lecturer in Management*
- Watson, Gayne L., B.Com., M.B.A. (S.G.W.), *Lecturer in Marketing*

Webb, Madelyn F., *Lecturer in Biology*
 Webber, John Charles, B.Sc. (Alberta), M.Sc. (Ottawa), Ph.D. (Calgary), *Lecturer in Electrical Engineering*
 Weinstein, Leonard, B.A. (Manitoba), *Lecturer in Education*
 Weller, Larry, B.A. (S.G.W.), *Lecturer in English*
 Wener, Albert, B.A. (McGill), M.A. (New York), M.A. (Pittsburgh), *Lecturer in Psychology*
 Whittome, Irene, Dip. F.A. (Vancouver), *Lecturer in Art*
 Wilcher, Asher, M.A. (Jerusalem), D.E.S. (Montreal), *Lecturer in Hebrew*
 Windebank, John, *Lecturer in Mechanical Engineering*
 Wolkove, Peter, C.A., *Lecturer in Accounting*
 Wood, Karen, B.A. (S.G.W.), *Lecturer in English*
 Worrell, Thora, B.A. (S.G.W.), *Lecturer in English*
 Wright, Jean, B.A. (U.B.C.), *Lecturer in English*
 Wrigglesworth, John, B.A. (McGill), M.T.M. (S.G.W.), *Lecturer in Mathematics*
 Wu, Chien-Ming, M.Sc., Ph.D. (British Columbia), *Lecturer in Mechanical Engineering*

Yedid, Joyce, *Lecturer in English*

Zack, Stan E., B.Sc., M.B.A. (McGill), *Lecturer in Quantitative Methods*
 Zgarka, Albert, Bacc., Lic. ès Lettres (Alger), *Lecturer in French*

Musicians in Residence

Baty, Janice B., B.Mus. (Eastman School of Music), M. Mus. (Yale School of Music)
 Decker, Franz-Paul, Staatsexamen (Cologne), Director, Montreal Symphony Orchestra
 Professor of Music in Residence
 Jean, Pierre E., B.A. (Mus.) (South Florida), M. Mus. (Louisville), License de Concert (Ecole Normale de Musique, Paris), Diplome d'Etudes (Conservatoire d'Ete, Nice), D.M.A. (Catholic)
 Whipple, Erica L., B.Mus. (Boston)
 Zilberberg, Roselyn, B.Sc. (Mus. Ed.) (Temple), M. Mus. (Perf.) (Yale)

Admission Regulations

Admissions

Thomas E. Swift, B.A., Assistant Registrar and Director of Admissions
 Lynne Prendergast, Admissions Officer
 Linda Durkee, Admissions Officer
 Sally Anderson, Admissions Interviewer
 Kenneth Battersby, B.A., School Liaison Officer

Classification of Students

(1) *Undergraduate Students:* Undergraduate students are those who meet the full admission requirements of the university and who have been formally accepted for admission to a faculty of the university. These students enroll in either the Day or Evening Division with the intention of completing the work required for a degree. If a student is admitted to a degree program, he will be classified as an undergraduate whether he is taking several subjects or only one in any given year.

(2) *Partial Course Students:* Students who do not wish to proceed to a degree irrespective of the number of courses they may be following in any given year are classified as partial course students. Students who register as partial students are not considered to have satisfied the undergraduate admission requirements and have no standing towards any degree at the university. If a partial student later transfers to undergraduate standing, he may receive credit towards his degree for the courses already taken, provided they apply towards the degree requirements at the time of transfer.

Degrees Offered

Bachelor of Arts	3 Year Program
Bachelor of Fine Arts	3 Year Program
Bachelor of Science	3 Year Program
Bachelor of Commerce	3 Year Program
Bachelor of Engineering	3 to 4 Year Program
Bachelor of Computer Science	3 Year Program

Areas of Specialization

Students applying for entry to the Faculty of Arts will register in one of the following: a departmental major, a joint major, an inter-disciplinary major, a departmental honours program, a combined honours program, an interdisciplinary honours program.

Students applying for entry to the Faculty of Science may register in an honours, major, joint-major, or general program.

Students applying for entry to the Faculty of Commerce and Administration will register in a major or honours program.

Students applying for entry to the Faculty of Engineering or Computer Science will indicate which

of the three available areas of specialization they wish to enter.

In keeping with the principles of general education in CEGEP, whereby students are encouraged to explore fields other than those of future specialization, universities must continue to offer, at the undergraduate level, certain introductory courses. It will be appreciated that students may not take for credit in their undergraduate program courses which are similar in content to those used to qualify for admission. If in doubt, you should, before registering in a course, check with the Admissions Office or the appropriate department.

The various areas of specialization and programs therein are listed below:

Faculty of Arts	Major	Honours	Joint Major
Applied Mathematics (Optimization)	.		.
Applied Social Science	.		
Art History (B.A.)			.
Art History (B.F.A.)	.		
Art History & Studio Art (B.F.A.)	.		
Art Education (B.F.A.)	.		
Asian Studies	.		
Canadian Politics	.		
Canadian Studies	.		
Comparative Political Studies	.		
Economics	.	.	.
Early Childhood Education	.		
Education			.
English	.	.	.
English & Religion		.	
Fine Arts (B.F.A.)	.		
French	.	.	.
Geography	.	.	.
German	.		.
Graphic Design (B.F.A.)	.		
Greek			.
Hebrew			.
History	.	.	.
History & Religion		.	
Humanities of Science	.		.
International Affairs	.		
Italian			.
Judaic Studies	.		.
Latin			.
Linguistics			.
Mathematics	.	.	.
Moving Pictures (B.A.)			.
Music (B.A.)			.
Philosophy	.	.	.
Philosophy & Education		.	
Philosophy & English		.	
Philosophy & Religion		.	
Philosophy & Sociology		.	
Philosophy of Education			.

	Major	Honours	Joint Major
Political Science	•	•	•
Political Philosophy	•		
Psychology	•	•	•
Religion (or History & Philosophy of Religion)	•	•	•
Religion & Sociology		•	
Russian			•
Russian Studies	•	•	
Social Psychology	•	•	
Social Welfare	•		
Sociology	•	•	•
Spanish	•		•
Statistics	•	•	•
Theatre Arts (B.A.)			•
Theatre Arts (B.F.A.)	•		
Urban Studies	•	•	
Visual Arts (B.A.)			•
Visual Arts (B.F.A.)	•		
Faculty of Science			
Biochemistry	•		•
Biological Sciences	•		•
Cell and Molecular Biology		•	
Ecology		•	
Physiology and Developmental Biology		•	
Chemistry	•	•	•
General Science	•		
Geology	•		•
Mathematics	•	•	•
Statistics	•	•	•
Applied Mathematics (Optimization)	•		•
Physics		•	
Experimental Physics	•		•
Theoretical Physics	•		•
Psychology	•	•	•
Faculty of Commerce			
Accountancy	•	•	
Economics	•	•	
Finance	•	•	
General Business	•	•	
Management	•	•	
Marketing	•	•	
Quantitative Methods	•	•	
Faculty of Engineering			
The following general areas of specialization are offered in the Faculty of Engineering:			
Civil Engineering	}	Bachelor of Engineering	
Electrical Engineering			
Mechanical Engineering			
Computer Science	}	Bachelor of Computer Science	
General Science Option			
Electronics Systems Option			
General Business Option			

Admission Requirements (Day and Evening Divisions)

The university reserves the right to refuse admission even when the stated requirements for entrance have been satisfied.

A) Successful completion of a two-year pre-university program in a CEGEP*, or CEGEP - equivalent program, with the award of a diploma for Collegial studies.

B) Within this general program, successful completion of whatever specific courses are required for entry into a given undergraduate program. These pre-university "profiles", established through joint action of the Quebec universities and the Department of Education of the Province, will be found in the Department of Education booklet *Cahiers de l'Enseignement Collegial 1972-1973* or in the Sir George Williams University Collegial Program Announcement. For the convenience of applicants, requirements are listed in each Faculty section of the announcement.

Applicants presenting other qualifications should consult with the Office of Admissions for additional information.

Criteria for Admission

The Pre-University Transcript

1) Applicants from a CEGEP*: Transcripts must be sent directly to the Office of Admissions by the Registrar of the CEGEP. The results of the first three semesters together with a certified list of courses being followed during the fourth and final semester must be submitted immediately. A final transcript showing the results of the fourth and final semester must also be submitted as soon as possible. Two copies of each transcript are required.

2) Applicants from a CEGEP — Equivalent Program: Transcripts must be sent directly to the Office of Admissions by the Registrar of the University. A Transcript showing the results of the previous year (s), the final results of any first semester half courses of the current year, and a complete list of courses being taken during the current year must be submitted immediately. A final transcript showing the complete record of study must be submitted as soon as possible. Two copies of each transcript are required.

3) Applicants from the S.G.W.U. Collegial Program: Transcripts will be obtained by the

* *Colleges of General and Vocational Education in the Province of Quebec.*

Director of Admissions directly from the Records Office.

Language Proficiency

Any student applying from outside Canada whose first language is other than English, must demonstrate that he is proficient in the English language by writing the Test of English as a Foreign Language administered by the Educational Testing Service.

Information and applications to write the test may be obtained by writing to: Test of English as a Foreign Language, Educational Testing Service, Princeton, New Jersey, U.S.A.

For students applying from within Canada whose first language is other than English, and who have had all or part of their secondary schooling in another language, the university assumes that such students will have assessed their ability to cope with a program where the language of instruction is English. To help those unsure of their competence, the university offers a voluntary diagnostic testing service, and a course is available for those who wish to improve their proficiency. This is a MSQP course which does not carry undergraduate credit. Students are advised to avail themselves of this service, since no special adjustments can be made in the case of students unable to continue in their programs through lack of English-language proficiency.

Selection Process and Notification

Admission to undergraduate studies is based on a careful review of all credentials presented on behalf of a candidate. An application for admission is not given final consideration until all the required items have been submitted. However, the university does have an Early Conditional Admission plan for applicants to the Undergraduate program.

Early Conditional Admission

Applicants seeking admission to the undergraduate programs may be granted a conditional acceptance on the basis of the first three semesters of work in a CEGEP, or its equivalent. Acceptance is contingent upon the student's successful completion of the final semester of study and upon meeting the prescribed academic admission requirements. Candidates admitted on the basis of Early Conditional Admission are notified prior to May 15.

S.G.W.U. Collegial Graduates

Students who are currently enrolled in their final year of the Sir George Williams Collegial Program and who wish to proceed to the first undergraduate year are required to apply for admission to their preferred area of course specialization in the undergraduate program. Application must be made prior to MARCH 1 on forms provided by the Office of Admissions.

Admission of Transfer Students

An applicant who has attended another university and wishes to transfer to the undergraduate program at Sir George Williams University should understand the following conditions:

- 1) Each application for advanced standing is considered on its own merit. Former university transcripts are not to be submitted by the applicant but must be sent directly to the Office of Admissions from the Registrar of his previous university. Two copies of each transcript are required. Although an applicant's records from several institutions may be summarized on one transcript, an application will not be considered until two official transcripts from each university attended have been received. These are required even though no credit may have been earned at an institution.
- 2) An applicant transferring from another university after a failed year will not be given credit for any of the courses in the failed year. If any of the courses in that year have been passed, he may, however, be allowed to substitute other courses for these instead of having to repeat them (See Residence Requirements).
- 3) A student will not be given credit for courses taken in another university during the same academic term in which he has registered for courses at Sir George Williams University, unless special permission has been obtained in advance from this university.
- 4) Any student who has registered at Sir George Williams University and who wishes to take courses at another university for transfer of credit to Sir George Williams must first have the courses approved by this university.
- 5) A student may not apply transfer credits towards the residence years at the university unless special permission has been obtained from the appropriate Faculty Council (See Residence Requirements).

Mature Student Qualifying Program

In keeping with the traditional open policy of Sir George Williams towards older students, the Mature Student Qualifying Program is designed to enable students who are twenty-one years of age or older to prepare themselves for entry to the new post-CEGEP undergraduate program. The university assumes that the age of the student will have allowed him or her to acquire informally some of the general education given to younger students in CEGEP, and concentrates on the knowledge and skills needed to tackle a given undergraduate program. The Mature Student Qualifying Program is offered in the Evening Division only. Students completing the Mature Student Qualifying Program who wish to proceed to the first undergraduate year are required to apply for admission to their intended area of course specialization in accordance with the prescribed application deadline dates. Application forms are available from the Office of Admissions. See page 191.

Admission as a Partial Course Student

University undergraduate entrance requirements are expected, but may be waived for partial students over 21 years of age, who have, through other experiences, the essential background for the course or courses. Nevertheless, the university reserves the right of decision as to the partial student's eligibility and, in certain cases, the right to ask for proof of appropriate university entrance requirements.

While partial course students following single courses of interest are encouraged to enroll, priority will be given to students proceeding to a degree.

It is not necessary for new partial course students to submit an application form. Partial course students should contact the Admissions Office for the proper procedure to follow.

Additional Requirements

Application Fee

All applications for undergraduate standing must be accompanied by an application fee of \$10 (Canadian), payable by certified cheque or money order. It is not refundable under any circumstances nor will it be applied towards tuition fees.

Admission Deposit (Day Applicants Only)

Each applicant who has been granted an Early Conditional or Regular admission to the Day Division is required to submit a certified cheque or money order of \$25.00 (Canadian) to confirm his intention of entering the university. This admission deposit is non-refundable, but will be applied towards tuition fees. In addition, it is not transferable nor may it be applied towards tuition fees for a session other than that to which the student has applied.

Students who receive an Early Conditional Acceptance but who do not successfully complete the minimum academic requirements for entrance and are subsequently refused admission will be refunded the admission deposit.

Medical Examination Report (Day Applicants Only)

Each student who is granted admission to the Day Division of the university must submit a Medical Examination Report on the form provided by the Director of Admissions. The medical report is not required until the student has received formal notification of acceptance.

Dates of Entry for New Undergraduate Students

Students are admitted as Day undergraduates in September and January. Evening undergraduates are admitted in September and May.

Deadline for Receipt of Applications

Applications for admission to undergraduate studies (all Faculties and years) must be received by the Office of Admissions prior to the following dates:

DAY DIVISION, WINTER SESSION (September to April) March 1

EVENING DIVISION, WINTER SESSION (September to April) July 15

EVENING DIVISION, SUMMER SESSION (June to August) April 15

The Faculty of Arts is a large and diverse community of scholars and students. It is home to a wide range of disciplines, from the natural sciences to the humanities. The faculty is committed to excellence in research and teaching, and to the advancement of knowledge and understanding. It is a place where ideas are explored and debated, and where the pursuit of truth is a central goal. The faculty is also committed to the well-being of its members, and to the development of a supportive and inclusive environment. It is a place where everyone has the opportunity to contribute to the advancement of knowledge and to the betterment of society.

Faculty of Arts

<p> Department of Anthropology Department of Biology Department of Chemistry Department of Earth and Atmospheric Sciences Department of Economics Department of Education Department of English Department of Geography Department of History Department of Law Department of Life Sciences Department of Mathematics Department of Medicine Department of Music Department of Nursing Department of Philosophy Department of Physics Department of Political Science Department of Psychology Department of Sociology Department of Theology Department of Visual Arts Department of Women's Studies Department of Zoology </p>	<p> Department of Anthropology Department of Biology Department of Chemistry Department of Earth and Atmospheric Sciences Department of Economics Department of Education Department of English Department of Geography Department of History Department of Law Department of Life Sciences Department of Mathematics Department of Medicine Department of Music Department of Nursing Department of Philosophy Department of Physics Department of Political Science Department of Psychology Department of Sociology Department of Theology Department of Visual Arts Department of Women's Studies Department of Zoology </p>	<p> Department of Anthropology Department of Biology Department of Chemistry Department of Earth and Atmospheric Sciences Department of Economics Department of Education Department of English Department of Geography Department of History Department of Law Department of Life Sciences Department of Mathematics Department of Medicine Department of Music Department of Nursing Department of Philosophy Department of Physics Department of Political Science Department of Psychology Department of Sociology Department of Theology Department of Visual Arts Department of Women's Studies Department of Zoology </p>
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Faculty of Arts*Dean*

Ian L. Campbell

Assistant Dean (Students)

Gerald Mahoney

Assistant Dean (Curriculum)

Michel Despland

Assistant Dean (Priorities)

Muriel Armstrong

Assistant to the Dean

Mona Osborne

Curriculum for the Degree of Bachelor of Arts**Admission Requirements**

General admission requirements are listed on page 34.

Specific requirements for admission to the various programs leading to the degree of Bachelor of Arts are listed below. Students lacking one or more of these prerequisites may be admitted, but they must include these courses in their undergraduate programs, towards which they will be credited.

Program titles refer to honours, majors and joint major components where these exist.

Applied Social Science
Geography

Sociology and
Anthropology

Urban Studies

One full course in
Mathematics or the
equivalent
in half courses.

No official prerequisites,
but it is recommended
that students take at
the Collegial level one
full course in
Psychology, one full
course in Sociology
and one full course in
Philosophy, or the
equivalent in half
courses.

Early Childhood Edu-
cation

Compulsory Collegial
language and literature
courses (i.e. two full
courses / or the
equivalent half courses).

English

Mathematics 002
(CEGEP 101)
and one other semester
course in Mathematics.
Biology 001 (CEGEP
301 or 921)
Psychology 011
(CEGEP 101 and 201)

Psychology

Social Psychology

French

One full course in
English literature (in
addition to compulsory
Collegial language and
literature courses).
One full course in
French; or equivalent
in half courses.

Art History
(Joint Major Component)
Moving Pictures
(Joint Major Component)
Theatre Arts
(Joint Major Component)
Visual Arts
(Joint Major Component)

One full course in
English Literature (in
addition to compulsory
Collegial language and
literature courses).
One full course in
French; or the
equivalent in half courses.

German
Greek
Hebrew
Italian
Latin
Russian
Spanish

At least one, and
preferably two, full
courses in the
language(s) to be
studied, or equivalent
in half courses.

Mathematics

Mathematics 002, 003,
004, 005 (CEGEP 101,
103, 105, 203)

Asian Studies
Canadian Politics
Canadian Studies
Economics
Education
(Joint Major Component)
History
Humanities of Science
International Affairs
Judaic Studies
Linguistics
Music
Philosophy
Political Philosophy
Political Science
Religion
Russian Studies
Social Welfare

No requirement.

NOTE: Quebec universities have agreed to admit to the appropriate undergraduate program any collegial student successfully completing one of the above programs provided of course that resources are sufficient. When all such qualified students have been admitted, the university reserves the right to admit students who may not have all the specified prerequisites according to its own criteria.

Degree Requirements

Students preparing for the degree of Bachelor of Arts will take 15 course-credits. A course-credit is a curriculum unit based usually on 3 lecture hours per week for an academic year, plus other scheduled activities, which in some cases may replace lecture hours, and personal work; or, in the case of the Evening division, the accepted equivalent. A three-hour course followed for one term only is therefore a half-course and represents a half credit. In program requirements, etc., the term "credit" and "half credit" are therefore used to denote "full course" and "half course" respectively.

Graduation with the degree of Bachelor of Arts requires:

1. Successful completion of a program of concentration in the form of a major or an honours program as listed below.
2. A maximum of eight 200-level course-credits out of the fifteen course-credits required for the degree.
3. Students taking a joint major, an interdisciplinary major, a departmental major, or a departmental honours may take no more than 11 of their 15 course-credits in one department, and no more than 13 in one division (i.e. Humanities Division or Social Sciences Division).
4. Students taking an interdisciplinary honours program or a combined honours program must take at least three course-credits outside of their division, and outside of their departments of concentration if the respective departments are in different divisions.

Concentration Requirement

Since the CEGEP program is designed to give all students the opportunity to explore different fields and thus acquire a broad general basis for further study, the undergraduate program in Arts requires some degree of specialization, according to the interests and capacities of the student. The two

main forms of specialization are the major, which requires that the student be successful in a prescribed pattern of courses, and honours, which involves not only a greater degree of concentration, but also a high level of academic performance.

In order to graduate, therefore, a student must have completed one of the following types of programs: a joint major program (with two components); an interdisciplinary major program; a departmental major program; a combined honours program; an interdisciplinary honours program; a departmental honours program.

Prior to registration, students will be required to select one of the types of programs outlined above. In the case of honours, students will register upon entry in an honours *program*, but their acceptance as honours *students* will depend on their performance during their first year. Students failing to meet requirements for honours standing will proceed as majors.

The requirement of selecting upon entry a major or honours program should not be thought of as being necessarily a final commitment. The Arts program is designed to be flexible enough to allow for changes of orientation, subject, of course, to limitations in the case of certain programs in great demand.

Major Programs

Program	Advisors
Applied Mathematics (Optimization)	J. Senez
Applied Social Science	R. McDonald
Art History	D. Andrus
Art History and Studio Art	D. Andrus S. Horner
Art Education	L. Sherman
Asian Studies	D.M. Miller
Canadian Politics	H. Shulman
Canadian Studies	R. Burns
Comparative Political Studies	K.J. Herrmann
Economics	P. Miles
Early Childhood Education	D. White
Education	H. Entwistle
English	E. Pechter
Fine Arts	P. Cohen S. Horner N. Springfield
French	C. Lévy
Geography	H.A. Clinch
German	A.M. Ketter

Graphic Design

Greek
Hebrew
History
Humanities of Science
International Affairs
Italian
Judaic Studies
Latin
Linguistics
Mathematics
Moving Pictures
Music
Philosophy
Political Science
Political Philosophy
Psychology

Religion
Russian
Russian Studies
Social Psychology
Social Welfare
Sociology

Spanish
Statistics
Theatre Arts
Urban Studies
Visual Arts

S. Horner
D. Jones
J. Miller
P.F. Widdows
P.F. Widdows
E.E. McCullough
F. Knelman
P.J. Arnopoulos
P.F. Widdows
J. Siegal
P.F. Widdows
C.R. Barton
J. Senez
T.B.A.
P. Cohen
P. Germain
H. Quinn
H. Hutter
J. Chaikelson
T. Maag
N. Taylor
D.M. Miller
P.F. Widdows
P.F. Widdows
G. Laing
R. McDonald
H. Potter
D. Forsythe
A. Synnott
J.D. Grayson
T. Dwivedi
N. Springford
R.W. Bryant
Y. Gaucher
G. Molinari
J.I. Smith

Each of these sequences is called a "joint major component".

Requirements for Majors**Applied Social Science**

The following courses, in an approved sequence, constitute a major in Applied Social Science:

A. 1st Year, Applied Social Science N-212;
3rd Year, Applied Social Science N-400, N-431

Two credits from the following taken in sequence over the three years:

Applied Social Science N-351*, N-431, N-451*, N-452*, N-441*, N-421*.

B. Psychology N-271

One credit from Sociology Area I (see page 117)

C. Three additional credits from Sociology and Psychology as follows:

One or more credits from Sociology Area III (see page 117)

One or more credits from Psychology N-422, N-428, N-438, N-442, N-452, N-454. (From year to year, substitutions will be allowed from 'Selected Problems' sections in Psychology, with the approval of the Chairman of the Department.)

NOTE: Psychology N-271 must be taken in the first year for students with a collegial course in Psychology (011 or equivalent). In any case it must be taken no later than the second year.

Asian Studies**Purpose of the Program**

As Canada strengthens her relationship with the nations of Asia, she will need young men and women who have been trained in Asian Studies to provide leadership in such fields as education, foreign service, banking, international law, overseas industry and business. The Asian Studies program seeks to meet this need by offering an interdisciplinary course of study involving the departments of economics, fine arts, history, geography, political science, religion, and sociology and anthropology.

Program Structure

Students electing this program proceed to a major based on an approved sequence of ten courses that includes five core courses (Group A) and a range of five electives (Groups B & C).

A. Asian Studies N-491

Seminar in Asian Studies

History N-261

Historical and Cultural Background of Modern Asia

A "major" is an approved *sequence* of courses. It includes a minimum of seven courses and a maximum of ten. The concentration may include certain approved courses in other closely related fields. The term "major" as used by Sir George Williams University implies that the student has followed, within the requirements for the degree, a planned program in a specialized field.

Joint Major Programs

A "joint major" is made up of two approved *sequences* of five courses in two specific fields. The term "joint major" as used by Sir George Williams University implies that the student has followed, within the requirements for the degree, a planned program of study in two specialized fields, with a lower degree of concentration in either than is afforded by a major program.

A student may select any two of the proposed sequences of five courses to form his joint major.

* half course

Political Science N-355	The Politics of Developing Areas-Asia
Religion N-311	The Religions of India, Ceylon, and Southeast Asia
or	
Religion N-312	The Religions of China and Japan
or	
Religion N-313	Islam
Anthropology N-463	Cultures of India and China

B. Three credits from the following:

Arabic N-411	Introduction to Arabic
Economics N-440	Economic Development
Economics N-448 *	Studies in Asian Economic Growth
History N-361	History of South and Southeast Asia
History N-362	History of East Asia
History N-461	Advanced Study in Asian and African History
Music N-343	Introduction to Non-Western Music
Political Science N-385	Diplomacy and Foreign Policy
Religion N-311	The Religions of India, Ceylon and Southeast Asia
Religion N-312	The Religions of China and Japan
Religion N-313	Islam

C. Two courses with Asian content chosen in consultation with the Asian Studies Major Advisor.

Asian Studies Committee

David M. Miller (Religion) - Coordinator
 Jaleel Ahmad (Economics)
 Philip Cohen (Fine Arts)
 John Hill (History)
 Lalita Singh (Political Science)
 Sheila McDonough (Religion)
 Charles Brant (Sociology and Anthropology)

Canadian Politics

The following courses, in an approved sequence, constitute a major in Canadian Politics:

A. Political Science N-231, N-330, N-334 *, N-335 *, N-436 *, N-437 *.

B. One credit in Political Science.

C. Two and one-half credits with relevant Canadian content from other departments. The courses must be approved by the Department of Political Science.

* half course

Canadian Studies

Purpose of the Program

The Canadian Studies Program is designed to introduce the student to a number of disciplines as they apply to Canada. It provides the opportunity to obtain a liberal arts education given direction and depth by a focus on Canada. After completing the introductory core of courses, the student develops a proposal for an interdisciplinary research project and then in consultation with the Coordinator plans a program of studies relevant to it. The research project is completed under the supervision of an advisor and is formally reported in the Canadian Studies Seminar.

Program Structure

Students electing this program proceed to a Major in Canadian Studies based on an approved sequence of courses which includes three core courses (Group A) and a range of electives (Groups B and C).

The following courses, in an approved sequence, constitute a major in Canadian Studies:

A. English N-244	Canadian Literature
French N-211	Langue II et composition élémentaire
	Canada since 1534
History N-221	
B. At least three credits chosen from	
English N-444	Canadian Literature (Advanced)
English N-448 *	Canadian Fiction
Art N-249	Canadian Sculpture and Architecture
Art N-444	The Arts in Canada
Music N-345 *	Folk Music of North America
French N-331	Littérature et culture canadiennes-françaises
French N-431 *	Le roman canadien-français contemporain
French N-432 *	La poésie canadienne-française contemporaine
French N-465 *	Théâtre québécois
Religion N-363	Religion in Canada
Economics N-434	Economic History of Canada
Economics N-446 *	The Economic Development of Quebec
Education N-442 *	Education in Canada
History N-321	Canada in Colonial Period: 1500-1840

History N-322	Modern Canada: 1840 to the present
History N-323	French Canada to 1840
History N-324	Quebec: 1840 to the present
Political Science N-330	Government and Politics of Canada
Political Science N-335*	Quebec Politics
Political Science N-436*	Canadian Federalism
Political Science N-437*	Canadian External Affairs
Sociology N-445*	Intergroup Relations in Canada
Sociology N-470*	Canadian Social Structure
Sociology N-471*	Quebec Society
Anthropology N-462	American Indian

C. Two credits chosen in consultation with the coordinator of the Canadian Studies Program.

D. Canadian Studies N-411 Seminar in Canadian Studies

Canadian Studies Committee

Robin Burns (History) - Coordinator
 Patricia Morley (English)
 Sandra Paikowsky (Fine Arts)

Comparative Political Studies

The following courses, in an approved sequence, constitute a major in Comparative Political Studies:

A. Political Science N-240, N-458.

B. Four credits chosen from among Political Science N-330, N-333, N-350, N-353, N-355, N-451.

C. Two credits with relevant comparative or area studies content from Political Science or other departments. The courses must be approved by the Department of Political Science.

Early Childhood Education

The following courses, in an approved sequence, constitute a major in Early Childhood Education: Education N-202, N-215, N-261, N-421, N-453*, N-461, Art N-251, Music N-421.

One credit chosen from Education N-430, N-441, N-451.

One credit chosen from Education N-415*, N-416*, N-417*

* half course

One half credit chosen from among Psychology N-212*, N-213*, N-214*, N-215*, N-302*, N-304 N-305* in consultation with the Department.

NOTE: Every student unless specifically exempted by the director of the program is required to undertake an internship in the third year as well as internships or workshops in Education N-202, N-215, N-261, Music N-421.

Economics

The following courses, in an approved sequence, constitute a major in Economics:

Economics N-209* and N-210*, or N-212.

Economics N-311 or N-312.

Economics N-316 or N-318.

One Economic history credit chosen from among Economics N-330, N-430, N-434, N-438.

Economics N-375*, or Quantitative Methods N-243* and N-244*, or equivalent.

The remainder of 7 credits to be chosen from among all other Economics courses.

English

The following courses, in an approved sequence, constitute a major in English:

Three credits chosen from English N-253, N-431, N-434, N-435, N-436, N-437, N-454, N-467.

Two credits chosen from English N-244, N-261*, N-266*, N-277, N-444, N-445, N-446, N-447*, N-449*, N-453*, N-455, N-461, N-462, N-463, N-464*, N-465*, N-468, N-475, N-481, N-483.

Two additional credits in English which may include Applied Linguistics N-431*, N-441*.

French

The following courses, in an approved sequence, constitute a major in French:

French N-214 or N-310, N-221, N-241, N-331.

Four credits in French at the '300' or '400' level chosen in consultation with the Department.

Geography

The following courses, in an approved sequence, constitute a major in Geography:

Geography N-211, N-260*, N-261*, N-271, N-362*, N-391*.

One of Geography N-341, N-343.

Two additional '300' or '400' level credits in Geography.

German

The following courses, in an approved sequence, constitute a major in German:

German N-211, N-241, N-452, N-453, N-454, N-455.

Two credits chosen from German N-451, N-456*, N-457*, N-458*, N-459*.

It is recommended that a student majoring in German take one additional credit chosen from Linguistics N-221, Philosophy N-211 or N-361, Religion N-443, History N-210, Political Science N-351, Geography N-423, Latin N-210 or N-240.

History

The following courses, in an approved sequence, constitute a major in History:

First Year: History N-210 and one additional course at the '200' level.

Second Year: Two credits in History, one of which may be at the '200' level.

Third Year: Two credits in History and two credits in related disciplines or in History, as approved by the Department. At least one of the History credits must be at the '400' level.

NOTE: Students must include one credit in Canadian History among their electives.

Humanities of Science

The following courses, in an approved sequence, constitute a major in the Humanities of Science:

A. Humanities of Science N-201*, N-202*, N-221*, N-222*.

B. Humanities of Science N-312 or one credit in Science, as approved by the Department.

C. Four additional credits, of which at least two must be chosen from Humanities of Science at the '300' or '400' level. The remaining credits may be chosen from Philosophy N-221, N-376*, N-421, Religion N-241, Sociology N-422, History N-333 or other courses with related content, as approved by the Department.

* half course

International Affairs

The following courses, in an approved sequence, constitute a major in International Affairs:

A. Political Science N-270, N-385, N-437*, N-481, N-483.

B. Three and one-half credits with relevant international content in Political Science or from other departments. The courses must be approved by the Department of Political Science.

Judaic Studies

The following courses, in an approved sequence, constitute a major in Judaic Studies:

A. Hebrew N-210 or equivalent, Religion N-222, N-325*, N-326*, N-327*, N-328*, N-351*, N-352*, Religion N-497* and Religion N-498* may be substituted for any '400' level course in consultation with the major advisor.

B. Two credits chosen from among Religion N-311, N-312, N-313, N-362, Sociology N-424.

Mathematics

The following courses, in an approved sequence, constitute a major in Mathematics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-361, N-391*.

Two and one-half additional credits in Mathematics, approved by the Department.

Students who major in Mathematics must register annually with the Department of Mathematics, by November 1.

Applied Mathematics (Optimization)

The following courses, in an approved sequence, constitute a major in Applied Mathematics (Optimization):

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-312*, N-331, N-351*, N-431, and one other course in Mathematics or related fields approved by the department.

Students who major in Applied Mathematics must register annually with the Department of Mathematics, by November 1.

Philosophy

The following courses, in an approved sequence, constitute a major in Philosophy:

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Two credits chosen from Philosophy N-221, or N-321, N-369, N-405.

Three credits chosen from Philosophy N-301, N-321, N-369, N-396*, N-401, N-403, N-405, N-407, N-421, N-431, N-493, N-495, N-496*.

Two additional credits in Philosophy.

Religion N-443 or N-444, Political Science N-311, or Education N-411 may be substituted for one of the '400' level credits in Philosophy with the approval of the Department Chairman.

Political Philosophy

The following courses, in an approved sequence, constitute a major in Political Philosophy:

A. Political Science N-220, N-311, N-413, Philosophy N-210 or N-211.

B. Four credits chosen from Philosophy N-369, N-372*, N-374*, N-376*, N-407, N-423, Political Science N-415, Sociology N-430.

Political Science

The following courses, in an approved sequence, constitute a major in Political Science:

A. Political Science N-220, N-240, N-270, N-330.

B. One credit from each of the four areas in Political Science.

NOTE: For a breakdown of the Areas see section on departmental offerings.

Psychology

The following courses, in an approved sequence, constitute a major in Psychology:

Psychology N-271 or N-273, N-412.

Five credits chosen from among Psychology N-241 or N-242, N-375*, N-413, N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-471, N-481, N-482, N-491*, N-492*, N-493*, N-494*. At least one of these five credits must be from among Psychology N-421, N-422, N-432, N-461.

NOTE: Students planning to do graduate work in Psychology or related fields should take Psychology N-241 or N-242 in their first or second year.

Religion

The following courses, in an approved sequence, constitute a major in Religion:

A. One credit from Religion N-213, N-222, N-311, N-312, N-313.

B. One credit from Religion N-231, N-241, N-351, N-352*, N-362, N-363.

C. Five additional credits in Religion at the '300' or '400' level.

Russian Studies

The following courses, in an approved sequence, constitute a major in Russian Studies:

Russian N-210	Introductory Course In Russian
Russian N-231	Advanced Russian Language and Stylistics
Russian N-241	Intermediate Russian
History N-341	History of Russia
Geography N-343	Geography of the U.S.S.R.

Two credits chosen from among:

Russian N-451	Introduction to 19th Century Russian Literature through the Short Story
Russian N-452	Soviet Literature
Russian N-453	Russian Drama
Russian N-454*	Study of an Individual Russian Author I
Russian N-455*	Study of an Individual Russian Author II
History N-342	Problems in Russian and Soviet History
Political Science N-353	Soviet and East European Politics
Philosophy N-365	Studies in Russian Philosophy
Economics N-464*	Marxian Economics
Economics N-465*	Soviet Economics

Russian Studies Committee

Irving Smith (History) - Coordinator

P.F. Widdows (Russian language)

Social Psychology

The following courses, in an approved sequence, constitute a major in Social Psychology:

Psychology N-271 or Psychology N-273.

Psychology N-412 and Sociology N-420 or Sociology N-430 and Psychology N-442.

* half course

One credit chosen from among
Sociology N-422, N-443, N-446.

One credit chosen from among
Psychology N-422, N-432, N-434.

Psychology N-428 or Sociology N-411.

One additional credit from either Anthropology or
Sociology.

Sociology and Anthropology

The following courses, in an approved sequence,
constitute a major in Sociology and Anthropology.

One credit chosen from Area I.

One credit chosen from Area II.

One credit chosen from Area III.

One credit chosen from Area IV.

One additional credit chosen from either Area I,
Area II, Area III, or Area IV.

Two credits from outside the department chosen
in consultation with the Major Advisor.

NOTE: For a breakdown of the Areas
see section on department offerings.

Social Welfare

The following courses, in an approved sequence,
constitute a major in Social Welfare:

A. At the introductory level: Economics N-209*
and N-210*, Political Science N-220, Psychology
N-211, Sociology N-210.

B. Two additional credits in Sociology and
two additional credits in at least one of the
other three fields named above.

C. Applied Social Science, N-461;
Psychology N-241 or Sociology N-241*.

Spanish

The following courses, in an approved sequence,
constitute a major in Spanish:

Spanish N-221, N-241.

Linguistics N-221.

Four credits chosen from Spanish N-411, N-451,
N-452, N-453, N-454, N-455.

* half course

Should the student wish to extend beyond
the required seven (7) courses,
he may choose any '400' level course
not done previously. Also available to him for
credit in the major beyond the mandatory
minimum are Portuguese N-441 and
Arabic N-411.

Statistics

The following courses, in an approved sequence,
constitute a major in Statistics:

Mathematics N-241, N-261, N-271*, N-281,
N-291*, N-341*, N-342*, N-343*, N-351*, N-352*,
and one and one-half other courses in
Mathematics or related field approved by
the department.

Students who major in Statistics must register
annually with the Department of Mathematics, by
November 1.

Urban Studies

The following courses, in an approved sequence,
constitute a major in Urban Studies:

Economics N-209* and	Introduction to Microeconomics
Economics N-210 or	Introduction to Macroeconomics
Economics N-212*	Introductory Economics
Geography N-211	Introduction to Human Geography
Political Science N-240 or	Comparative Politics
Political Science N-330	Government and Politics of Canada
Sociology N-210	Introduction to Sociology
Economics N-275*	Introduction to Statistics for Economists
or	
Geography N-362*	Quantitative Geography I
or	
Sociology N-241	Statistics
and the remainder of one and one-half credits chosen from	
Economics N-274*	The Use of Economic Data
Geography N-260*	Introduction to Cartography I
Geography N-261*	Introduction to Cartography II
Political Science N-220	Introduction to Political Theory

Sociology N-411	Research Techniques
Economics N-426*	Urban Economics
Geography N-331	Urban Geography
Sociology N-441*	Sociology of Urban Regions
Sociology N-448*	Population and Society
Political Science N-334*	Urban Politics

An additional one and one-half credits chosen from

Economics N-404*	Urban Economics
Economics N-405*	Economic Policy II
Economics N-427*	Regional Economics
Economics N-446*	The Economic Development of Quebec
Geography N-355	Spatial Organization
Geography N-434	Applied Urban Geography
Geography N-457*	Geography of Transportation
Political Science N-333	Problems of Public Administration
Sociology N-440*	Community Studies
Sociology N-450	Seminar in Urban and Metropolitan Studies
Sociology N-454	Industry and Society

Other courses can be substituted with permission of the Urban Studies Committee.

No more than one of the one and one-half credits can be taken in any one department.

Urban Studies Committee

R.W.G. Bryant (Geography) - Coordinator
 T. Buckner (Sociology)
 K. Herrmann (Political Science)
 P. Hohenberg (Economics)
 R. Keaton (Political Science)

Requirements for Joint Majors

A "joint major" is made up of any two "joint major components" selected by the student from the following list.

Joint Major Components

Art History

The following courses constitute the joint major component in Art History:

Art N-342, N-343, N-444.

Two credits chosen from among Art N-341, N-345, N-441, N-442, N-443, N-445, N-446, N-448*, N-449*.

* half course

Economics

The following courses constitute the joint major component in Economics:

Economics N-209* and N-210*, or N-212.

Economics N-311 or N-312.

Economics N-316 or N-318.

Two additional credits in Economics.

Education

The following courses constitute the joint major component in Education:

Five credits chosen from among Education N-201, N-416*, N-417*, N-421, N-430, N-441, N-451, N-495, N-497*.

English

The following courses constitute the joint major component in English:

Three credits from English N-253, N-431, N-434, N-435, N-436, N-437, N-454, N-467.

Two credits chosen from English N-244, N-261*, N-266*, N-277, N-444, N-445, N-446, N-447*, N-449*, N-453*, N-455, N-461, N-462, N-463, N-464*, N-465*, N-468, N-475, N-481, N-483.

French

The following courses constitute the joint major component in French:

French N-214 or N-310.

Two credits chosen from French N-221, N-241, N-331.

Two '300' or '400' level credits in French.

Geography

The following courses constitute the joint major component in Geography:

Geography N-211, N-271.

Geography N-260* and N-261*.

Two additional credits in Geography.

German

The following courses constitute the joint major component in German:

German N-211, N-241.

Three credits chosen from German N-451, N-452, N-453, N-454, N-455, N-456*, N-457*, N-458*, N-459*.

Greek

The following courses constitute the joint major component in Greek:

Classics N-221.

Greek N-210, N-241.

N-441, N-442.

Hebrew

The following courses constitute the joint major component in Hebrew:

Hebrew N-241, N-441, N-442, N-451.

Linguistics N-221 or Arabic N-411.

History

The following courses constitute the joint major component in History:

History N-210.

One credit chosen from History N-221, N-251, N-261.

Two '300' level credits in History.

One additional '300' or '400' credit in History.

Humanities of Science

The following courses constitute the joint major component in the Humanities of Science:

A. Humanities of Science N-201*, N-202* and N-221*, N-222*.

B. Three credits from the remaining Humanities of Science courses for the major.

Italian

The following courses constitute the joint major component in Italian:

Italian N-221, N-241, N-451, N-452, one 400-level Italian literature course taken at Loyola.

Judaic Studies

The following courses constitute the joint major component in Judaic Studies:

Hebrew N-210 or equivalent, Religion N-251*, N-252*, N-222, N-425*, N-426*, N-427*, N-428*. Religion N-497* and Religion N-498* may be substituted for any '400' level course in consultation with the major advisor.

Latin

The following courses constitute the joint major component in Latin:

Classics N-221.

Latin N-240, N-241,

N-441, N-442.

Linguistics

The following courses constitute the joint major component in Linguistics:

Linguistics N-221, N-421, N-431, N-441.

One credit chosen from Arabic N-411, Linguistics N-490, English N-481, French N-312, N-417, N-313*, N-418*.

Mathematics

The following courses constitute the joint major component in Mathematics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, and one additional full course approved by the Department in Mathematics or a related field.

Moving Pictures

The following courses constitute the joint major component in Moving Pictures:

Five credits chosen from Moving Pictures N-211, N-212, N-311, N-312, N-411, N-412, N-431.

Music

The following courses constitute the joint major component in Music:

Five credits chosen from Music N-231*, N-235, N-245, N-321*, N-335, N-341*, N-342*, N-343*, N-345*, N-351*, N-352*, N-421, N-465*, N-471*, N-485*.

Philosophy

The following courses constitute the joint major component in Philosophy:

Two credits chosen from Philosophy N-221 or N-321, N-369, N-405.

Three credits chosen from Philosophy N-301, N-321, N-369, N-396*, N-401, N-403, N-405, N-407, N-421, N-431, N-493, N-495, N-496*.

Philosophy of Education

The following courses constitute the joint major component in Philosophy of Education:

* half course

Education N-201, N-430, N-441, N-490*, N-491*, N-492*, N-493*.

Political Science

The following courses constitute the joint major component in Political Science:

A. Three credits chosen from among Political Science N-220, N-240, N-270, N-330.

B. Two additional credits in Political Science.

Psychology

The following courses constitute the joint major component in Psychology:

Psychology N-271.

Four credits chosen from Psychology N-241 or N-242, N-412, N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-481, N-482. One of these full credits may be chosen from among Psychology N-302*, N-303*, N-304*, N-305*, N-402*, N-403*, N-404*, N-405*.

Religion

The following courses constitute the joint major component in Religion:

Five credits in Religion to be determined in consultation with the Religion Major Advisor.

Russian

The following courses constitute the joint major component in Russian:

Russian N-241 and Russian N-231.

Three credits chosen from Russian N-451, N-452, N-453, N-454* and N-455*.

Sociology and Anthropology

The following courses constitute the joint major component in Sociology and Anthropology.

One credit chosen from Area I.

One credit chosen from Area II.

One credit chosen from Area III.

One credit chosen from Area IV.

One additional credit chosen from either Area I, Area II, Area III or Area IV.

* half course

NOTE: For a breakdown of the Areas see section on departmental offerings.

Spanish

The following courses constitute the joint major component in Spanish:

Spanish N-221, N-241.

Three credits chosen from N-411, N-451, N-452, N-453, N-454, N-455.

Theatre Arts

The following courses constitute the joint major component in Theatre Arts.

Theatre Arts N-212, N-255.

Three credits chosen from Theatre Arts N-247, N-312, N-315, N-331, N-340, N-355, N-413, N-421, N-431, N-455.

Visual Arts

The following courses constitute the joint major component in the Visual Arts:

Two or three credits chosen from Art N-210*, N-211*, N-311*, N-312*, N-331*, N-332*, N-338*, N-370*, N-400*, N-401*, N-438*.

The remainder of the five credits chosen from Art N-341, N-342, N-343, N-345, N-441, N-443, N-444, N-445, N-446.

Honours Programs

The university has approved programs leading to an honours degree in certain selected fields. An honours degree indicates specialization within a field, and high academic standing. In order to qualify for an honours degree a student must meet all of the academic qualifications and comply with the regulations set forth below.

1. A candidate for an honours degree should indicate such intention at registration and consult the honours representative of the department(s) concerned as soon as possible. Acceptance as an honours student will depend on performance during the first year. The honours standing will be reviewed annually.

A student who has followed the courses prescribed for the honours program and has met all the requirements may enter the program with the approval of the honours representative any time before beginning the final five courses. No retroactive approval of entry may be made.

2. A student who enters with advanced standing may apply pro tanto credits which are applicable to the honours degree requirements, upon approval by the department(s).

A transfer student must complete a minimum of five credits in the basic honours program in residence to receive a degree with honours.

3. An honours student must maintain a 'B' average with no grade lower than 'C' in all courses in the basic honours program.

An honours student must meet the general degree requirements as well as the specific requirements for an honours degree, and must obtain at least a 'C' average over the total degree program.

Failure in any course will mean suspension or withdrawal from the honours program. Students who fail to meet acceptance requirements and who are required to withdraw from the honours program will proceed as majors. Reinstatement into the honours program is possible only by recommendation by the honours representative.

4. A student shall be allowed to qualify for only one honours degree in either a single or combined honours program.

5. A degree with honours in any program is granted upon graduation only with the approval of the University Council.

Honours Committee

Associate Professor Roger B. Angel, Chairman
 Assistant Professor E. Brian Markland
 Associate Professor Brian Slack
 Associate Professor Ronald Westbury
 Professor Joseph P. Zwelg, Past Chairman
 Mona Osborne, Secretary

Department Representatives

Economics	Muriel Armstrong, Professor of Economics
English	Edward Pechter, Assistant Professor of English
French	Claude Levy, Assistant Professor of French
Geography	Harry A. Clinch, Associate Professor of Geography
History	Richard J. Diubaldo, Assistant Professor of History
Mathematics	Norman E. Smith, Professor of Mathematics

* half course

Philosophy	Christine Garside, Assistant Professor of Philosophy
Political Science	Lalita Singh, Associate Professor of Political Science
Psychology	Thomas Gray, Assistant Professor of Psychology
Religion	David Miller, Associate Professor of Religion
Sociology and Anthropology	Taylor Buckner, Associate Professor of Sociology
Statistics	T. Dwivedi, Associate Professor of Mathematics

Requirements for Honours

Economics

The following courses constitute an honours program in Economics, provided the student maintains the required academic standing:

Pattern A

Economics N-211, 209* and N-210*, or N-212; N-311 or N-312; N-318, N-415.

Economics N-270* and N-271* or Mathematics N-203 and N-205, or equivalent.

Economics N-375* or Quantitative Methods N-243* and 244*, or equivalent.

One economic history credit chosen from among Economics N-330, N-430, N-434, N-438.

The remainder of 10 credits to be chosen from among all other Economics courses.

Pattern B (emphasis on Mathematical Economics)

Economics N-211, 209* and N-210*, or N-212, N-312, N-318, N-415, N-476*, N-477*.

Economics N-270* and N-271* or Mathematics N-203 and 205, or equivalent.

Economics N-375* or Quantitative Methods N-243* and 244* or equivalent.

One economic history credit chosen from among Economics N-330, N-430, N-434, N-438.

The remainder of 10 credits to be chosen from among Economics N-412*, N-413*, N-442, N-443, N-470*, N-471*.

English

The following courses constitute an honours program in English, provided the student maintains the required academic standing:

Three credits chosen from English N-253, N-431, N-434, N-435, N-436, N-437, N-454, N-467.

Two credits chosen from English N-244, N-261*, N-266*, N-277, N-444, N-445, N-446, N-447*, N-449*, N-453*, N-455, N-461, N-462, N-463, N-464*, N-465*, N-468, N-475, N-481, N-483.

Three additional credits in English which may include Applied Linguistics N-431*, N-441*.

NOTE: Before following a plan of study, students are advised to consult with the Department.

English and Religion

The following courses constitute an honours program in English and Religion, provided the student maintains the required academic standing:

Pattern A (emphasis on the historical)

A. English N-253; N-431 or N-455. Two credits chosen from English N-434, N-435, N-436, N-437, N-445, N-454, N-431 or N-455. One credit chosen from English N-447*, N-449*, N-453*, N-467, N-471*, N-475, N-492.

B. Religion N-351*, N-352*. One credit chosen from Religion N-213, N-231, N-241, N-222, N-363. Religion N-461. One credit chosen from Religion N-443, N-491. One credit chosen from Religion N-311, N-312, N-313, N-325*, N-326*, N-327*, N-328*, N-465.

Pattern B (emphasis on the contemporary)

A. English N-253. Two credits chosen from English N-244, N-431, N-435, N-436, N-444, N-445, English N-437 or N-446. One credit chosen from English N-461, N-462, N-464*, N-465*, N-467, N-475, N-492.

B. Four credits chosen from Religion N-213, N-231, N-241, N-351*, N-352*, N-363, N-443. Two credits chosen from Religion N-311, N-312, N-313, N-325*, N-326*, N-327*, N-328*, N-491.

It is strongly recommended that an honours student in English and Religion planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew, or Latin.

French

The following courses constitute an honours program in French, provided the student maintains the required academic standing:

Pattern A (emphasis on Literature)

French N-214, N-221, N-241, N-310, N-331, N-491.

Four additional credits in French Literature.

Pattern B (emphasis on Linguistics)

French N-221, N-241, N-331.

* half course

French N-312, N-314, N-410, N-417.

Three credits in French at the '300' or '400' level.

Geography

The following courses constitute an honours program in Geography, provided the student maintains the required academic standing:

Pattern A (emphasis on Physical Geography)

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.

One credit chosen from Geography N-341, N-343.

Three credits chosen from Geography N-371, N-372, N-373, N-474, N-475.

One credit chosen from any '300' or '400' level Geography course not listed above.

Pattern B (emphasis on Human Geography)

NOTE: Students taking this pattern may specialize in Historical Geography.

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.

Four credits chosen from Geography N-316, N-321, N-322, N-412, N-422, and N-423, including at least one of Geography N-341, N-343.

One credit chosen from any '300' or '400' level Geography course not listed above.

Pattern C (emphasis on Economic Geography)

NOTE: Students taking this pattern may specialize in Urban Geography.

First Year: Geography N-211, N-260*, N-261*, N-271.

Second and Third Years: Geography N-362*, N-391*, N-491.

One credit chosen from Geography N-341, N-343.

Three credits chosen from Geography N-331, N-355, N-357, N-434, N-451, N-457*, N-458*.

One credit chosen from any '300' or '400' level Geography course not listed above.

History

The following courses constitute an honours program in History, provided the student maintains the required academic standing:

First Year: History N-210 and two additional credits at the '200' level, one of which may be in a related discipline as approved by the Department.

Second Year: History N-390 and two additional credits in History, one of which may be at the '200' level, provided that no more than three '200' level History credits are taken, including History N-210.

Third Year: History N-490 and one additional credit in History at the '400' level.
Two additional credits in History must be taken with the proviso that the student may substitute one of these credits with an approved course in a related discipline.

NOTE: Students must include one credit in Canadian History among their electives.

History and Religion

The following courses constitute an honours program in History and Religion, provided the student maintains the required academic standing:

Pattern I (Asia)

A. History N-210, N-261, N-361, N-362, N-390.

B. Religion N-213, N-311, N-312, N-313.

C. Sociology N-210, N-424.

Any '400' level course in History or Religion may be substituted for any one credit with the approval of the honours representative. Students who are interested in comparative aspects of Islamic development are reminded that History N-365 is available.

Pattern II (Europe)

A. History N-210, N-390.

B. One credit selected from Religion N-213, N-231, N-241.

C. Seven credits selected from:
History N-331, N-332, N-333, N-336;
Religion N-262, N-443, N-461;
Sociology N-210, N-424.

NOTE: Students electing to take Sociology N-210 in the honours program must take Sociology N-424 as well.

Mathematics

The following courses constitute an honours program in Mathematics, provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*,
N-281, N-291*.

* half course

Second Year: Mathematics N-361, N-366*, N-371*, N-381*, N-391*, and one other full credit or equivalent approved by the department from among:

Mathematics N-311*, N-312*, N-321*, N-322*, N-331, N-351*, N-392*.

Third Year: Mathematics N-461, N-466*, N-467*, N-491*, N-492* and one other full credit or equivalent approved by the department from among:

Mathematics N-431, N-432*, N-451*, N-471*, N-475* and second year options not taken previously.

NOTE: Students with a strong interest in operations research may receive department permission to take Mathematics N-312*, N-331, N-351* as their options and to replace Mathematics N-467* and N-492* with Mathematics N-431, and Mathematics N-491 with Mathematics N-432*.

Philosophy

The following courses constitute an honours program in Philosophy, provided the student maintains the required academic standing:

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Two credits chosen from Philosophy N-221, N-271, N-273, N-301.

Philosophy N-221 or N-321 or N-369.

Two credits in Philosophy at the '300' level.

Philosophy N-369 or N-405.

Two credits chosen from Philosophy N-401, N-403, N-405, N-407, N-421, N-431, N-493, N-495, N-496*.

It is strongly recommended that an honours student in Philosophy planning to do graduate work acquire a good reading knowledge of a modern language related to his field of interest.

Philosophy and Education

The following courses constitute an honours program in Philosophy and Education, provided the student maintains the required academic standing:

Psychology N-211.

One credit chosen from Psychology N-212*, N-213*, N-302*, N-303*, N-434.

One credit chosen from Education N-451 or Sociology N-451.

Education N-430.

Education N-441 (prerequisite, one '200' level credit in History).

Education N-480 (This course must be taken concurrently with Philosophy N-480).

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

One credit chosen from Philosophy N-231, N-271, N-273, N-301, N-321, N-369, N-372*, N-374*, N-376*, N-378*, N-396*, N-401, N-403, N-405, N-407, N-431, N-493, N-496*.

Philosophy N-369 or N-405.

Philosophy N-480 (This course must be taken concurrently with Education N-480).

Philosophy and English

The following courses constitute an honours program in Philosophy and English, provided the student maintains the required academic standing:

Three credits chosen from English N-253, N-431, N-434, N-435, N-436, N-437, N-454, N-467.

Three credits chosen from English N-244, N-261*, N-266*, N-277, N-444, N-445, N-446, N-447*, N-449*, N-453*, N-455, N-461, N-462, N-463, N-464*, N-465*, N-468, N-475, N-481, N-483.

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

One credit chosen from Philosophy N-231, N-271, N-273, N-301, N-361, N-369, N-372*, N-374*, N-376*, N-378*.

Philosophy N-369 or N-405.

One credit chosen from Philosophy N-321, N-365, N-396*, N-401, N-403, N-405, N-407, N-431, N-493, N-496*, Humanities N-340*.

Philosophy and Religion

The following courses constitute an honours

* half course

program in Philosophy and Religion, provided the student maintains the required academic standing:

Two credits chosen from Religion N-213, N-231, N-241, N-351*, N-352*.

Religion N-443.

One credit chosen from Religion N-461, N-363.

Religion N-444.

One credit chosen from Religion N-311, N-312, N-313, N-325*, N-326*, N-327*, N-328*, N-491, N-492.

Philosophy N-210 or N-211 or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321 or N-369.

One credit chosen from Philosophy N-231, N-271, N-273, N-301, N-361, N-363, N-365, N-369, N-372*, N-374*, N-376*, N-378*.

Philosophy N-369 or N-405.

One credit chosen from Philosophy N-321, N-365, N-396*, N-401, N-403, N-405, N-407, N-431, N-493, N-496*.

Political Science

The following courses constitute an honours program in Political Science, provided the student maintains the required academic standing:

A. Political Science N-220, N-240, N-270, N-330.

B. One credit chosen from each of the four areas in Political Science.

C. Political Science N-415, N-491.

NOTE: Students are strongly advised to learn a foreign language or take a course in statistics.

For a breakdown of the Areas see section on departmental offerings.

Psychology

The following courses constitute an honours program in Psychology, provided the student maintains the required academic standing:

First Year: Psychology N-241 or N-242, N-273 (see NOTE), N-412.

Second Year: Three credits chosen from among Psychology N-421, N-422, N-428, N-432, N-434, N-438, N-442 and N-461. In addition Psychology N-375* may be taken as an option.

Third Year: Psychology N-413, N-472. One credit chosen from among Psychology N-421, N-422, N-428, N-432, N-434, N-438, N-442, N-452, N-454, N-461, N-462, N-481, N-482, N-491*, N-492*, N-493*, N-494*.

NOTE: Students who have taken Psychology N-271 in their first year and who are then accepted into the honours program will be exempted from Psychology N-273, but may be required to take Psychology N-471 in their second year.

Religion

The following courses constitute an honours program in Religion, provided the student maintains the required academic standing.

A. Two credits from Religion N-213, N-222, N-311, N-312, N-313.

B. Two credits from Religion N-231, N-241, N-325*, N-326*, N-327*, N-328*, N-351*, N-352*, N-362, N-363.

C. Four credits in Religion at the '300' or '400' level, two of which must be at the '400' level.

D. Two additional credits to be taken either in Religion or in a related discipline subject to approval by the departmental honours representative.

It is strongly recommended that an honours student in Religion planning to do graduate work acquire a good reading knowledge of French, German and other languages that might be required for his field.

Religion and Sociology

The following courses constitute an honours program in Religion and Sociology, provided the student maintains the required academic standing:

A. Anthropology N-211, Religion N-213, Sociology N-210. One credit chosen from Religion N-231, N-241, N-351*, N-352*, N-363.

B. Two credits chosen from Religion N-311, N-312, N-313, N-325*, N-326*, N-327*, N-328*, N-461. Two credits chosen from Religion N-443, N-444, N-491; Sociology N-430 or N-431; N-481. One credit chosen from Anthropology N-423, Sociology N-424, N-443, N-446, N-494. One additional credit in Sociology chosen in consultation with the student's honours advisor.

It is strongly recommended that an honours student in Religion and Sociology planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew, or Latin.

Russian Studies

The following courses constitute an honours

* half course

program in Russian Studies, provided the student maintains the required academic standing:

Economics N-465*, (prerequisite: Economics N-209* and N-210*, or N-212), N-464*.

Russian N-210, N-231, N-241.

History N-341, N-342; Geography N-343.

Two credits chosen from Russian N-451, N-452, N-453, Philosophy N-365, Political Science N-352*.

Social Psychology

The following courses constitute an honours program in Social Psychology, provided the student maintains the required academic standing:

First year: One credit from among Psychology N-241, or Psychology N-242, or Sociology N-241.
Psychology N-273. (see NOTE)
Psychology N-412 or Sociology N-430.

Second year: Sociology N-420 (if Psychology N-412 was taken in first year) or Psychology N-442 (if Sociology N-430 was taken in first year). One credit from among Sociology N-422, N-443, N-446. One credit from among Psychology N-422, N-432, N-434.

Third year: Psychology N-428 or Sociology N-411. Psychology N-472 or Sociology N-481. One credit from Anthropology. Psychology or Sociology.

NOTE: Students who have taken Psychology N-271 in their first year and who are then accepted into the honours program will be exempted from Psychology N-273, but may be required to take Psychology N-471 in their second year.

Sociology

The following courses constitute an honours program in Sociology, provided the student maintains the required academic standing:

Sociology N-241*, N-411 and N-481.

One credit from Area II.

One credit from Area III.

One credit from Area IV.

One additional credit within the Department.

Three credits outside the Department chosen in consultation with the honours representative. All three credits must be within the same Department.

NOTE: For a breakdown of the Areas see section on departmental offerings.

Sociology and Philosophy

The following courses constitute an honours program in Sociology and Philosophy, provided the student maintains the required academic standing:

Pattern A (Epistemology and Methodology)

Sociology N-210, or the Collegial or other equivalent.

Sociology N-241*, N-411, N-481.

One credit chosen from Sociology N-420, N-430, N-431.

Sociology N-422 or N-496.

One credit chosen from Philosophy N-210, N-211, N-221, or the Collegial or other equivalent.

Philosophy N-380.

Philosophy N-221 or N-321.

Philosophy N-369 or N-405.

One half-credit chosen from Philosophy N-372*, N-374*, N-376*.

One credit chosen from Philosophy N-321, N-369, N-396*, N-401, N-405, N-421, N-493, N-496*.

Pattern B (Man in Society)

Sociology N-210 or the Collegial or other equivalent.

Anthropology N-211 or the Collegial or other equivalent.

Sociology N-420, N-481.

One credit chosen from Sociology N-421, N-422, Anthropology N-423.

One credit chosen from Sociology N-442, N-443, N-444*, N-445*, N-446, N-447, N-454.

Philosophy N-210 or N-211.

Philosophy N-380.

One credit chosen from Philosophy N-221, N-321, N-369.

One credit chosen from Philosophy N-372*, N-374*, N-376*, N-378*.

Any two additional credits in Philosophy.

* half course

Statistics

The following courses constitute an honours program in Statistics, provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-351*, N-352*, N-361, N-366*, N-381*, N-391*, and one half-credit approved by the Department from among: Mathematics N-311*, N-312*, N-321*, N-341*, N-342*, N-343*.

Third Year: Mathematics N-371*, N-451*, N-452*, N-461, N-466*, and one full credit or equivalent approved by the department from among:

Mathematics N-331, N-431, N-441*, N-467*, N-471*, N-491*, N-492* and second year options not taken previously.

NOTE: Students with a strong interest in operations research may receive departmental permission to take Mathematics N-312*, N-331 as their options, and to replace either Mathematics N-371* and N-466* or N-461 with Mathematics N-431.

Urban Studies

The following courses constitute an honours program in Urban Studies, provided the student maintains the required academic standing:

Economics N-209* and N-210*, or N-212; Geography N-211; Political Science N-240 or N-330; Sociology N-210.

Economics N-375* or Geography N-362* or Sociology N-241* and the remainder of one and one-half credits chosen from Economics N-274*, Geography N-260*, N-261*, Political Science N-220, Sociology N-441.

Economics N-426*; Geography N-331; Sociology N-441*; N-448*; Political Science N-334*.

Urban Studies N-491.

An additional two and one-half credits chosen from Economics N-404*, N-405*, N-427*, N-446*, Geography N-355*, N-434, N-451, N-457*, Political Science N-333, Sociology N-440; N-450, N-453*, N-454.

Other courses can be substituted with permission of the Urban Studies Committee. No more than two and one-half credits can be taken in any one department.

Urban Studies Committee

Associate Professor R.W.G. Bryant (Geography),
Coordinator

Associate Professor H.T. Buckner (Sociology)

Associate Professor K.J. Herrmann (Political
Science)

Visiting Associate Professor P. Hohenberg
(Economics)

R. Keaton (Political Science)

Curriculum for the Degree of Bachelor of Fine Arts

Admission Requirements

General admission requirements are listed on
page 34.

Specific requirements for admission to the various
major programs in Fine Arts are as follows:

Art History	} Two full studio courses, one Art History course- credit and one ad- ditional course-credit selected from Art History, Cinema, Music or Theatre Arts. An Education major should have one course-credit in Psychology and one course-credit in History or Philosophy.
Art History and Studio Art	
Art Education	
Fine Arts	
Graphic Design	
Visual Arts	
Theatre Arts	

Alternative requirements for entry to the Major in
Art History (B.F.A.) or the Major in Fine Arts
(B.F.A.): two full course-credits in Art History or
permission of the Department of Fine Arts.

Alternative requirements for entry to the Major in
Theatre Arts (B.F.A.): one course-credit in English
Literature (in addition to general required courses)
and one course credit in French.

A student without the necessary studio courses
must take Art N-331* and Art N-360* as a pre-
requisite to other studio courses in the Visual Arts.

NOTE: Quebec universities have agreed to ad-
mit to the appropriate undergraduate program any
collegial student successfully completing the
above program provided of course that resources
are sufficient. When all such qualified students
have been admitted, the university reserves the
right to admit students who may not have all the
specified prerequisites according to its own cri-
teria.

* half course

Degree Requirements

Students preparing for the degree of Bachelor of
Fine Arts will take 15 course-credits. A full credit
represents three hours of lecture work in class or
six hours of studio work per week for a full acade-
mic year, or the approved equivalent in the
Evening Division. (Students will be expected to
complete a minimum of one hour of outside work
per class hour.) For students not enrolled in the
Bachelor of Fine Arts program a limited number
of openings are available in Art N-210*, N-211*,
N-331*, N-332* and N-251. Courses open to all
include Art N-232, N-240, N-248, N-249, N-342,
N-343, N-345, N-441, N-443, N-444, N-445,
N-446, N-461.

Applications to transfer into the Bachelor of Fine
Arts program will be considered at the end of first
year university studies after students have com-
pleted Art N-331* and Art N-332*. The number of
students accepted into the BFA program will depend
upon the space available. Applicants will be con-
sidered on the basis of a portfolio of work (three-
dimensional work should be photographed), re-
commendations by the instructors and any other
relevant information. Students intending to apply
for transfer to the Bachelor of Fine Arts at the end
of first year should fill out the necessary forms
available from the office of Admissions.

Students who have already completed courses in
other colleges or universities and wish to apply
for advanced standing will be granted credit on the
basis of the program at Sir George Williams
University. A transcript, portfolio and/or slides of
work should be submitted to the Department of
Fine Arts at the time of application prior to March
1st and by appointment with the Department. Stu-
dents seeking a second degree must complete a
minimum of the last two academic years at Sir
George Williams University, while students trans-
ferring credit towards a first degree must complete
a minimum of one full academic year.

Graduation with the degree of Bachelor of Fine
Arts requires:

1. Successful completion of a major program of 10
full courses.
2. A maximum of eight 200-level credits out of the
fifteen course-credits required for the degree.
3. Students must take at least four of their 15
course-credits outside of the Department of Fine
Arts.

These four course-credits shall be selected ac-
cording to the following requirements:

A. Two course-credits shall be outside of the Department of Fine Arts but may be in the same division (Humanities) of the Faculty.

B. Two course credits in the other division of the Faculty (i.e. Social Sciences) or in another Faculty.

Concentration Requirement

Students must major in one of the following: Art Education, Art History, Art History and Studio Art, Fine Arts, Graphic Design, Theatre Arts or Visual Arts.

Prior to registration, students will be required to select one of the types of programs outlined above.

The requirement of selecting a major program upon entry should not be thought of as being necessarily a final commitment. The Arts program is designed to be flexible enough to allow for changes of orientation, subject, of course, to limitations in the case of certain programs in great demand.

Diploma in Art Education

The Department of Fine Arts offers a one year course leading to the Sir George Williams University Diploma in Art Education.

This course is integrated with the Bachelor of Fine Arts, Art Education major, to provide a continuous pattern of studies preparing art specialists for teaching in elementary and secondary schools.

In order to qualify for admission students must have completed the Sir George Williams University Bachelor of Fine Arts, Art Education major, or the equivalent. Graduates of other institutions will be considered if they have had the equivalent of an undergraduate major in studio work and can present an acceptable portfolio. They will be expected to make up the education and art education courses included in the Bachelor of Fine Arts, Art Education major.

The Diploma Course is offered in the Day Division only. Graduates who have been awarded the Diploma in Art Education meet the requirements for a Specialists Certificate in Art, awarded by the Quebec Board of Education. Detailed course descriptions will be found in the Graduate Studies Announcement.

Requirements for Majors

Art History (B.F.A.)

The following courses, in an approved sequence, constitute a major in Art History.

* half course

A. Art N-240, N-341, N-342, N-343, N-443, N-444, N-447.

B. A minimum of two credits or a maximum of four credits chosen from among Art N-240, Art N-345, N-441, N-442, N-445, N-446, N-460.

With permission of the Department, a student may substitute up to two credits for courses in Art History listed under B. These substitute courses may be selected from other sections of the Fine Arts Department, or from other departments. In any case the major will consist of a total of ten credits.

NOTE: Students who have had the CEGEP equivalent of Art N-240 need not take it as part of their major program but may elect to take it with the permission of the Department.

Art History and Studio Art (B.F.A.)

The following courses, in an approved sequence, constitute a major in Art History and Studio Art.

Art N-240.

Five credits chosen from Art N-341, N-342, N-343, N-345, N-441, N-442, N-443, N-444, N-446, N-447.

A student may substitute one of Art N-360, N-460, N-461 for one of his credits in Art History.

Five credits in Studio courses in the Visual Arts which may include up to one credit in Theatre Arts N-255 or Moving Pictures N-211 or Music N-235 or N-335 or N-471* or N-485*.

Art Education (B.F.A.)

The following courses, in an approved sequence, constitute a major in Art Education.

Option A

Art N-430*, N-432*, N-450.

Two to four credits in Art Seminar or Art History.

The remainder of the ten credits to be chosen from among Visual Arts Studio credits. Among these a student may choose up to one and one-half credits in Moving Pictures.

Option A is recommended for those wishing to teach Studio and/or Art History at the secondary level.

All students intending to apply for the Diploma in Art Education and Teacher Certification are required to take Education N-201 and one '400' level course in Education.

Option B

Art N-430*, N-432*, N-450.

Three credits in Visual Arts Studio.

One credit in Art History.

Four credits to be selected from among the following areas: Music, Theatre Arts, Moving Pictures.

Option B is recommended for those wishing to teach the "expressive" arts at the elementary level and for those Art Education majors interested in inter-arts education.

All students intending to apply for the Diploma in Art Education and Teacher Certification are required to take Education N-201 and one '400' level course in Education.

Fine Arts (B.F.A.)

The following courses, in an approved sequence, constitute a major in Fine Arts. A major consists of ten full credits selected from at least three of the following sections with a maximum of four credits selected from any one section.

Visual Arts

Art History Section

Art N-240
Art N-342
Art N-343
Art N-345
Art N-443
Art N-444
Art N-445

Visual Arts

Studio Section

Art N-210*
Art N-211*
Art N-311*
Art N-331*
Art N-332*
Art N-370*
Art N-400*
Art N-430*

Theatre Arts Section

Theatre Arts N-247
Theatre Arts N-255
Theatre Arts N-315
Theatre Arts N-331

Music

Section

Music N-235
Music N-245
Music N-321
Music N-341*
Music N-343*
Music N-345*
Music N-421

Moving Pictures Section

Moving Pictures N-211
Moving Pictures N-212
Moving Pictures N-311
Moving Pictures N-312

Graphic Design (B.F.A.)

The following courses, in an approved sequence, constitute a major in Graphic Design.

Two credits in lecture and/or seminar courses in Art or Art History including a minimum of one credit in Art History.

Art N-338*, N-370*, N-371*, N-372*.

Three credits chosen from among Art N-373*, N-374*, N-471*, N-472*, N-473*, N-474*, N-475*, N-476*.

Three additional Studio Art credits.

NOTE: Students are advised to take Art N-370* and N-371* concurrently in the first term of the first year.

Theatre Arts (B.F.A.)

The following courses, in an approved sequence, constitute a major in Theatre Arts.

Theatre Arts N-212, N-247, N-255, N-421.

Six credits chosen from among Theatre Arts N-312, N-315, N-331, N-340, N-413, N-431, N-455.

Visual Arts (B.F.A.)

The following courses, in an approved sequence, constitute a major in Visual Arts.

Two credits in lecture and/or seminar courses in Art or Art History including a minimum of one credit in Art History.

Eight credits in Studio courses in the Visual Arts which may include up to one credit from Theatre Arts N-255, N-312, Moving Pictures N-311, N-312, Music N-231, N-235, N-321, N-335, N-421, N-465, N-471*, N-485, N-485*, N-486.

* half course

Courses

NOTE: The numbers in brackets following the course numbers refer to the old four-year program, and indicate comparable, but not necessarily equivalent, courses in that program.

HUMANITIES OF SCIENCE

*Associate Professor and
Chairman of the Department*
D. Wade Chambers
Professor
Fred Knelman
Assistant Professors
Gordon Cadenhead
Jeffrey Crelinsten

NOTE: Courses in Humanities of Science may be regarded as courses in Humanities or in Social Sciences.

Humanities of Science N-201 (201)

Introduction to Science and Human Affairs I

The social and historical context of scientific and technological change. The reciprocal interactions of science with government, ideology, economic development, religion, literature, and social theory; science and the city; science and the control of human life; science and human liberation; new definitions of scientific responsibility may be considered. (half course)

NOTE: Students who have credit for two of the three courses (Humanities of Science N-211, N-261 and N-271) may not register for this course.

Humanities of Science N-202 (202)

Introduction to Science and Human Affairs II

A continuation of Humanities of Science N-201. This course may be taken independently. (half course)

NOTE: Students who have credit for two of the three courses (Humanities of Science N-211, N-261 and N-271) may not register for this course.

Humanities of Science N-221 (221)

Environmental Issues I

The scientific, social and cultural nature of man's relationship to his environment. Emphasis will be placed on pollution, conservation, population, resources and human ecology. (half course)

NOTE: Students who have credit for two of the three courses (Humanities of Science N-211, N-261 and N-271) may not register for this course.

Humanities of Science N-222 (222)

Environmental Issues II

A continuation of Humanities of Science N-221. This course may be taken independently. (half course)

NOTE: Students who have credit for two of the three courses (Humanities of Science N-211, N-261 and N-271) may not register for this course.

Humanities of Science N-312 (212)

Case Histories in Experimental Science

Readings will concentrate on the original scientific

texts (e.g. Harvey, Galileo, Newton, Faraday, Pasteur, Crick and Watson). In the laboratory section, students will follow the original experimental procedures, which will also be examined in classroom demonstrations, on film, and on videotape. (full course)

NOTE: Students who have credit for Humanities of Science N-212 may not take this course for credit.

Humanities of Science N-321 (421)

Early Man

Prerequisite: Geography N-211, or enrolment in an honours or department major program in a Social Science. An examination of the scientific evidence for the unwritten part of man's evolutionary history. The course will study both food-gathering man and food-producing man. The roles of the biological and cultural components will be considered as well as the limiting factor of environment. (full course)

Humanities of Science N-401 (471)

Advanced Study in Technology and Society

Prerequisite: Humanities of Science N-201 and N-202. The social role and impact of technology in modern society; alienation in the technological age; the critique of technology; the sources and processes of discovery; invention and innovation; methods of technological assessment and forecasting. (full course)

NOTE: Students who have credit for Humanities of Science N-471 may not take this course for credit.

Humanities of Science-History N-446 (446)

Advanced Study in the History of Science

Prerequisite: Permission of the instructor. Seminar in a selected topic in the History of Science. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (full course)

NOTE: With permission of the instructor, a student may take this course twice for credit, provided that a different subject is dealt with the second time. A

student repeating Humanities of Science N-446 for credit will register under Humanities of Science N-447.

NOTE: Students who have credit for History N-446 may not take this course for credit.

Humanities of Science-History N-447 (447)

Advanced Study in the History of Science

Prerequisite: Permission of the instructor. A student repeating Humanities of Science N-446 for a second time registers for credit under Humanities of Science N-447. (full course)

Humanities of Science N-451 (451)

Astronomy, Cosmology and the Space Age

The nature of the universe as described in both contemporary and historical astronomical theories; cosmology and its cultural context; the nature of scientific method in astronomy; life on other worlds; the social implications of space flight. (full course)

NOTE: Students who have credit for Natural Science 231 may not take this course for credit.

Humanities of Science N-472 (472)

Science and Public Policy

Prerequisite: Humanities of Science N-201 and N-202. The relationship between science and government. Particular emphasis is placed on such problems as the role of the scientist in political decision-making, the making of Canadian science policy, the mix of basic, applied and mission-oriented research, the relations of science and the military, the nature of technocracy and the role of science in economically developing nations. (full course)

Cognate Course

Archaeology N-212

Introduction to Archaeology II

Interdisciplinary Programs

ASIAN STUDIES

Purpose of the Program

As Canada strengthens her relationships with the nations of Asia, she will need young men and women who have been trained in Asian Studies, to provide leadership in such fields as education, foreign service, banking, international law, overseas industry and business. The Asian Studies Program seeks to meet this need by offering an interdisciplinary course of study involving the departments of Economics, Fine Arts, History, Geography, Political Science, Religion and Sociology-Anthropology.

Program Structure

Students electing this program proceed to a

* half course

major based on an approved sequence of ten courses that includes five core courses (Group A) and a range of five electives (Group B & C).

A. Asian Studies N-491

History N-261

Political Science N-355

Religion N-311

or

Religion N-312

or

Religion N-313

Anthropology N-463

B. Three credits from the following:

Arabic N-411

Economics N-440

Economics N-448 *

History N-361

History N-362

History N-461

Music N-343

Political Science N-385

Religion N-311

Religion N-312

Religion N-313

Seminar in Asian Studies

Historical and Cultural Background of Modern Asia

The Politics of Developing Areas-Asia
The Religions of India, Ceylon, and Southeast Asia

The Religions of China and Japan

Islam
Cultures of India and China

Introduction to Arabic
Economic Development
Studies in Asian

Economic Growth
History of South and Southeast Asia

History of East Asia
Advanced Study in Asian and African History

Introduction to Non-Western Music

Diplomacy and Foreign Policy

The Religions of India, Ceylon and Southeast Asia

The Religions of China and Japan
Islam

C. Two courses with Asian content chosen in consultation with the Asian Studies Major Advisor.

Asian Studies Committee

David M. Miller (Religion) - Coordinator

Jaleel Ahmad (Economics)

Philip Cohen (Fine Arts)

John Hill (History)

Lalita Singh (Political Science)

Sheila McDonough (Religion)

Charles Brant (Sociology - Anthropology)

CANADIAN STUDIES

Purpose of the Program

The Canadian Studies Program is designed to introduce the student to a number of disciplines as

they apply to Canada. It provides the opportunity to obtain a liberal arts education given direction and depth by a focus on Canada. After completing the introductory core of courses, the student develops a proposal for an interdisciplinary research project and then in consultation with the Coordinator plans a program of studies relevant to it. The research project is completed under the supervision of an advisor and is formally reported in the Canadian Studies Seminar.

Program Structure

Students electing this program proceed to a major in Canadian Studies based on an approved sequence of courses which includes three core courses (Group A), and a range of electives (Groups B and C).

The following courses, in an approved sequence, constitute a major in Canadian Studies:

A. English N-244 French N-211	Canadian Literature Langue II et composition élémentaire History of Canada since 1534
History N-221	
B. At least three credits chosen from	
English N-444	Canadian Literature (Advanced)
English N-448* Art N-249	Canadian Fiction Canadian Sculpture and Architecture
Art N-444 Music N-345*	The Arts in Canada Folk Music of North America
French N-331	Littérature et culture canadiennes-françaises
French N-431*	Le roman canadien- français contemporain
French N-432*	La poésie canadienne- française contemporaine
French N-465* Religion N-363 Economics N-434	Théâtre québécois Religion in Canada Economic History of Canada
Economics N-446*	The Economic Development of Quebec
Education N-442*	Education in Canada
History N-321	Canada in Colonial Period: 1500-1840
History N-322	Modern Canada: 1840 to the present
History N-323 History N-324	French Canada to 1840 Quebec: 1840 to the Present

* half course

Political Science N-330

Political Science N-335*
Political Science N-436*
Political Science N-437*

Sociology N-445*

Sociology N-470*

Sociology N-471*
Anthropology N-462

C. Two credits chosen in consultation with the coordinator of the Canadian Studies Program.

D. Canadian Studies N-411
**Seminar in Canadian
Studies**

Canadian Studies Committee

Robin Burns (History) - Coordinator
Patricia Morley (English)
Sandra Paikowsky (Fine Arts)

RUSSIAN STUDIES

The following courses, in an approved sequence, constitute a major in Russian Studies:

Russian N-210*	Introductory Course in Russian
Russian N-231	Advanced Russian Language and Stylistics
Russian N-241 History N-341 Geography N-343	Intermediate Russian History of Russia Geography of the U.S.S.R.
Two credits chosen from among Russian N-451	Introduction to 19th Century Russian Literature through the Short Story
Russian N-452 Russian N-453 Russian N-454*	Soviet Literature Russian Drama Study of an Individual Russian Author I
Russian N-455*	Study of an Individual Russian Author II
History N-342	Problems in Russian and Soviet History
Political Science N-353	Soviet and East European Politics
Philosophy N-365	Studies in Russian Philosophy
Economics N-464* Economics N-465*	Marxian Economics Soviet Economics

Geog
* half course

Russian Studies Committee

Irving Smith (History) - Coordinator
T. Sidorow (Russian language)

URBAN STUDIES

The following courses, in an approved sequence, constitute a major in Urban Studies:

Economics N-209*	Introduction to Microeconomics
and	
Economics N-210	Introduction to Macroeconomics
or	
Economics N-212*	Introductory Economics
Geography N-211	Introduction to Human Geography
Political Science N-240	Comparative Politics
or	
Political Science N-330	Government and Politics of Canada
Sociology N-210	Introduction to Sociology
Economics N-275*	introduction to Statistics for Economists
or	
Geography N-362*	Quantitative Geography
or	
Sociology N-241	Statistics
and the remainder of one and one-half credits chosen from	
Economics N-274*	The Use of Economic Data
Geography N-260*	Introduction to Cartography I
Geography N-261*	Introduction to Cartography II
Political Science N-220	Introduction to Political Theory
Sociology N-411	Research Techniques
Economics N-426*	Urban Economics
Geography N-331	Urban Geography
Sociology N-441*	Sociology of Urban Regions
Sociology N-448*	Population and Society
Political Science N-334*	Urban Politics
An additional one and one-half credits chosen from	
Economics N-404*	Urban Economics
Economics N-405*	Economic Policy II
Economics N-427*	Regional Economics
Economics N-446*	The Economic Development of Quebec
Geography N-355	Spatial Organization

* half course

Geography N-434

Geography N-457*

Political Science N-333

Sociology N-440*

Sociology N-450

Sociology N-454

Other courses can be substituted with permission of the Urban Studies Committee.

No more than one of the one and one-half credits can be taken in any one department.

Urban Studies Committee

R.W.G. Bryant (Geography) - Coordinator

T. Buckner (Sociology)

K. Herrmann (Political Science)

P. Hohenberg (Economics)

R. Keaton (Political Science)

Humanities Division

HUMANITIES

Humanities N-241 (241)

Nature of Woman: Historic Attitudes

An interdisciplinary study of the nature of woman as understood by western society from its Greek origins to the mid-nineteenth century. Sample topics are: the Greek myths, the Bible (Eve and Mary), Greek philosophy (Plato and Aristotle), courtly love, medieval mysticism and Victorianism (Kierkegaard, Schopenhauer, Queen Victoria and Ibsen). (half course)

NOTE: Students who have credit for Humanities N-340 may not take this course for credit.

Humanities N-242 (242)

Nature of Woman: Recent Approaches

An interdisciplinary study of the nature of woman as understood by western society from the mid-nineteenth century to the present. Sample topics are: the effect of the Industrial Revolution on the family (Marx and Engels), the emancipation of women (John Stuart Mill, Virginia Woolfe), the psychology of woman (Freud and Jung), and contemporary attitudes towards women and Women's Liberation. (half course)

NOTE: Students who have credit for Humanities N-340 may not take this course for credit.

ARCHAEOLOGY

Archaeology N-211 (211)

Introduction to Archaeology I

An introduction to the archaeology of the ancient civilizations of the Near East and Mediterranean.

Special consideration will be given to key discoveries in such areas as Mesopotamia, Egypt, Palestine, Crete, Greece, and Italy. Problems of field methodology will also be discussed. (half course)

Archaeology N-212 (212)

Introduction to Archaeology II

A survey of some of the more significant archaeological discoveries of prehistoric cultures in both Old and New Worlds. The techniques of physical science in archaeology will be examined. Consideration will also be given to the development of Early Man. (half course)

CANADIAN STUDIES

Canadian Studies N-411 (411)

Seminar in Canadian Studies

Prerequisite: registration in the second year of the

major in Canadian Studies. This is a seminar course in Canadian Studies which involves participation by interested members of the staff as well as by students in the third year of the major in Canadian Studies. (full course)

NOTE: With the permission of the Department a student may take this course twice for credit, providing that a different subject is dealt with the second time. A student repeating Canadian Studies N-411 for credit will register under Canadian Studies N-412.

Canadian Studies N-412 (412)

Seminar in Canadian Studies

Prerequisite: registration in second year of the major in Canadian Studies. A student repeating Canadian Studies N-411 for a second time registers for credit under Canadian Studies N-412. (full course)

CLASSICS, MODERN LANGUAGES AND LINGUISTICS

*Professor of Classics, and Chairman
of the Department*
Paul Widdows

* The University reserves the right to place any student in the course for which he is best suited.

I. CLASSICS

Professor of Classics

Paul Widdows

Associate Professor of Classics and Linguistics
Charles R. Barton

Classics N-221 (211)

History of Greece and Rome

A political, cultural and social history of Greece and Rome from the Mycenaean Age to the Fall of the Roman Empire, with special emphasis on fifth century Athens and Rome of the Republic and Early Empire. No knowledge of Latin or Greek is required. (full course)

NOTE: Students who have credit for Classics 011 may not take this course for credit.

Classics N-241 (241)

Greek Literature in Translation

A survey of the major literary achievements of Ancient Greece. Special attention will be given to epic poetry, tragedy and comedy, as well as a variety of works in prose. The historical development of each of these genres will be discussed, along with a critical analysis of each author's

contribution. No knowledge of Greek is required. (half course)

NOTE: Students who have credit for Classics 041 or 141 may not take this course for credit.

Classics N-242 (242)

Latin Literature in Translation

A study through selected readings in translation of representatives of the major genres of Latin literature (epic, drama, satire, rhetoric, lyric poetry, philosophy) up to the second century A.D. No knowledge of Latin is required. (half course)

NOTE: Students who have credit for Classics 042 or 142 may not take this course for credit.

Cognate Course

Archaeology N-211

Introduction to Archaeology I

ANCIENT GREEK

Greek N-210 (211)

Introductory Course in Greek

The purpose of this course is to enable a student, in one year, to gain an adequate knowledge of

Greek grammar and syntax and to read simple passages of Greek. (full course)

NOTE: Students who have credit for Greek 011 or 110 may not take this course for credit.

Greek N-241 (212)

Greek Language and Literature

The purpose of this course is to complete the study of Greek grammar and syntax begun in Greek N-210, and to enable students to begin reading Ancient Greek authors. (full course)

NOTE: Students who have credit for Greek 012 or 141 may not take this course for credit.

Greek N-441 (421)

Greek Literature

This is essentially a reading course involving the study of certain of the great works of Ancient Greek literature. It is assumed that students taking this course have an adequate knowledge of Greek and a fair vocabulary. (full course)

NOTE: Students who have credit for Greek 021 may not take this course for credit.

Greek N-442 (422)

Greek Literature (Advanced)

A further study of Ancient Greek literature (to follow Greek N-441). (full course)

LATIN

Latin N-210 (201)

Beginners' Latin

This course is designed for students who have had no previous Latin and is particularly recommended for those students who wish to be prepared for Latin N-240. The course offers instruction in Latin grammar, translation and prose composition. (full course)

NOTE: Students who have received credit toward their admission for high-school Latin or have credit for Latin 001 may not take this course for credit.

Latin N-240 (211)

Latin Composition and Translation

This course consists of translation and literary interpretation of prescribed selections from the Latin classics in prose and poetry. In addition there is a review of Latin grammar and syntax and instruction in prose composition. (full course)

NOTE: Students who have credit for Latin 011 may not take this course for credit.

Latin N-241 (421)

Latin Literature

This course continues the study of Latin literature begun in Latin N-240, concentrating on particular authors. Two authors will be read during the year, one of whom will normally be Virgil. (full course)

NOTE: Students who have credit for Latin 021 may not take this course for credit.

Latin N-441 (422)

Latin Literature (Advanced)

A continuation of Latin N-241, concentrating on a particular period or the works of a particular author, e.g. Juvenal and Tacitus, or Lucretius. (full course)

Latin N-442 (423)

Latin Literature (Advanced)

A parallel course to Latin N-441 covering different authors, e.g. Latin Comedy, Latin Elegists or Horace. As Latin N-441 and Latin N-442 will not usually be given in the same year, Latin N-442 may be taken before Latin N-441. (full course)

II. MODERN LANGUAGES

Literature in Translation N-350 (450)

A study of representative works of German or Russian Literature. All reading and lectures will be in English. In any given year only one of these literatures will be offered. (full course)

NOTE: A student may take this course twice for credit, provided that the subject literature is different. He will register the second time under Literature in Translation N-351.

Literature in Translation N-351 (451)

A student repeating Literature in Translation N-350 for a second time registers for credit under Literature in Translation N-351. (full course)

Literature in Translation N-352 (452)

A study of representative works of Hispanic (Peninsular and Spanish American) or Italian Literature. All readings and lectures will be in English. In any given year only one of these literatures will be offered. (full course)

NOTE: A student may take this course twice for credit, provided that the subject literature is different. He will register the second time under Literature in Translation N-353.

Literature in Translation N-353 (453)

A student repeating Literature in Translation N-352 for a second time registers for credit under Literature in Translation N-353. (full course)

GERMAN

Associate Professor
 Annamaria Ketter
Assistant Professor
 Ilse Ehmer

German N-210 (211)

Introductory Course in German

A beginners' course in the German language which is designed, in one year, to make the student conversant with the grammar, pronunciation and ordinary vocabulary of the language. Emphasis is placed upon learning to speak the language, as well as to read and write it. Lectures and laboratory. (full course)

NOTE: Students whose first language is German, or whose schooling has been conducted in German will not be admitted to this course. Students who have credit for German 011, 015, 215 or N-215 may not take this course for credit.

German N-211 (411)

Advanced German Language and Stylistics

Prerequisite: German N-241 or equivalent. This course is intended to give the student increased fluency and a firmer command of the language. The emphasis of the course is on stylistics and composition. The subject matter will be approached through a study of German civilization. (full course).

NOTE: Students who have credit for German 091 may not take this course for credit.

German N-215 (215)

German for Reading Knowledge

This course will give the student sufficient background in the structure of the language to be able to read German with reasonable competence. Practice material will be both technical and non-technical. No previous knowledge of the language is required. (full course)

NOTE: Students whose first language is German, or whose schooling has been conducted in German, will not be admitted to this course.

Students who have credit for German 011, 015 or N-210 may not take this course for credit. This is a terminal course, and may not be used as a prerequisite for advanced courses in German.

German N-241 (212)

German Language and Literature (Intermediate)

Prerequisite: German N-210 or equivalent.

Advanced instruction in the language. Emphasis upon idiom and usage in conversation and composition. Representative readings from the works of

German writers. (full course)

NOTE: Students whose first language is German, or whose schooling has been conducted in German, will not be admitted to this course.

Students who have credit for German 012 may not take this course for credit.

German N-451 (424)

German Literature of the Sixteenth and Seventeenth Centuries

Prerequisites: German N-211 and N-241. A detailed study of representative writers of this period, such as Luther, Brant, Hans Sachs, Silesius, Grimmelshausen and others. Classes will be conducted in German. (full course)

German N-452 (422)

German Literature from 1750 to 1830

Prerequisite: German N-241 or equivalent. Study of the works of Lessing, Goethe, Schiller, Brentano and others. This course is conducted entirely in German. (full course)

German N-453 (423)

History of the German Drama

Prerequisite: German N-241 or equivalent.

A study of German drama from its beginnings to modern times. Classes will be conducted in German. (full course)

German N-454 (421)

A Study of the Deutsche Novelle

Prerequisite: German N-241 or equivalent.

Advanced composition and oral work. A study of the Deutsche Novelle from Goethe to Kafka. This course is conducted entirely in German. (full course)

German N-455 (451)

Reading Course in the Modern German Novel

Prerequisite: German N-454. A study of the German novel since 1900. There will be no class periods, and students will work under the direct supervision of the instructor. Regular assignments will be given, and written and oral examinations will be given at the end of the course. (full course)

German N-456 (425)

The 'Hörspiel'

Prerequisites: German N-211 and N-241. A study of one of the youngest art forms which was developed with the help of and for a new medium, the radio. Literary and technical aspects as well as the most representative writers, i.e. Eich, Dürrenmatt, Böll, Hildesheimer and others, will be discussed. Classes will be conducted in German. (half course)

German N-457 (426)

German Poetry from the Middle Ages to Modern Times

Prerequisites: German N-211 and N-241. A conspectus of German poetry through the centuries. Outstanding examples of representative poets will be studied in detail. Classes will be conducted in German. (half course)

German N-458 (427)

Study of an Individual German Author I

Prerequisites: German N-211 and N-241. This course will consist of the detailed study of a German author, e.g. Kafka, Rilke, Goethe. Classes will be conducted in German. (half course)

German N-459 (428)

Study of an Individual German Author II

Prerequisite: German N-211 and N-241. This course will consist of the detailed study of a German author, e.g. Brecht, Büchner, Lenz. Classes will be conducted in German. (half course)

HEBREW

Supervisor

Joseph A. Macaiuso

Associate Professor

Hebrew N-210 (211)

Introductory Course in Hebrew

A beginners' course in Hebrew, spoken and written, with reading of classical and modern texts. Lectures and laboratory. (full course)

NOTE: Students who have credit for Hebrew 023 or whose schooling has been conducted in Hebrew, will not be admitted to this course. Students who have credit for Hebrew 011 may not take this course for credit.

Hebrew N-215 (215)

Biblical Hebrew

A course designed to enable the student to acquire the elements of Biblical Hebrew by means of reading practice and other exercises. This course is directed specifically towards Hebrew Biblical studies and is in no sense an equivalent of Hebrew N-210. (full course)

Hebrew N-241 (212)

Intermediate Course in Hebrew

Prerequisite: Hebrew N-210, or two or three years of high-school Hebrew, or equivalent. Readings in the Bible and an introduction to modern Hebrew Literature. This course will also complete the study of Hebrew grammar and syntax begun in Hebrew 211, with special emphasis on modern Hebrew usage. (full course)

NOTE: Students whose first language is Hebrew, or whose schooling has been conducted in

Hebrew, will not be admitted to this course.

Students who have credit for Hebrew 012 may not take this course for credit.

Hebrew N-441 (422)

From the Talmudic Period to the Haskalah

Prerequisite: Hebrew N-241 or equivalent. Hebrew literature from Talmudic times to the Enlightenment. Classes will be conducted in Hebrew. (full course)

Hebrew N-442 (424)

Medieval Literature (The Golden Age)

Prerequisite: Hebrew N-441 or N-451 or its equivalent. A study of the literature of the Hebrew Golden Age, with emphasis on Maimonides, Judah Halevi, Ibn Ezra, Ibn Gabirol, Rashi and Gersonides. Classes will be conducted in Hebrew. (full course)

Hebrew N-451 (423)

Modern Literature.

Prerequisite: Hebrew N-241 or equivalent. A study of Hebrew literature of the 19th and 20th centuries. This course is conducted in Hebrew. (full course)

NOTE: Students who have credit for Hebrew 023 may not take this course for credit.

ITALIAN

Associate Professor of Spanish and Italian

Joseph A. Macaluso

Italian N-210 (211)

Introductory Course in Italian

A beginners' course in the Italian language which is designed to acquaint the student in one year with the main grammatical principles and basic vocabulary. Practice is given in reading, writing and conversation with particular emphasis on oral work. Lectures and laboratory. (full course)

NOTE: Students whose first language is Italian, or whose schooling has been conducted in Italian, will not be admitted to this course. Students who have credit for Italian 011 may not take this course for credit.

Italian N-221 (221)

Italian Civilization

Prerequisite: Italian N-241, or equivalent, or permission of the Department. This course is designed to introduce the student to Italy's cultural, artistic, and social institutions as reflected in her *belle arti*, literature and commercial history. Certain literary works will be analyzed as a reflection of her people. Generally, the period to be

covered will encompass from Italy's earliest times until the present era. Although primarily concerned with ideas and aesthetics, attention will be given to regional customs and dialectology. This course will be conducted in Italian. (full course)
NOTE: Students who have credit for Italian 021 or 121 may not take this course for credit.

Italian N-241 (212)

Intermediate Italian

Prerequisite: Italian N-210, or two years of high school Italian or equivalent, or permission of the instructor. This course consists of a complete review of Italian grammar and a study of some of the more advanced aspects of usage. Through the reading of short stories, poetry and novels, the student is given the opportunity to acquaint himself with Italian letters and civilization. (full course)

NOTE: Students whose first language is Italian, or whose schooling has been conducted in Italian, will not be admitted to this course.

Students who have credit for Italian 012 may not take this course for credit.

Italian N-451 (421)

Renaissance Literature

Prerequisite: Italian N-241 or equivalent. A study of Renaissance literature, with special emphasis on Ariosto, Machiavelli and Guicciardini. Classes will be conducted in Italian. (full course)

Italian N-452 (422)

Literature of the Twentieth Century

Prerequisite: Italian N-241 or equivalent. A course in Italian literature of the twentieth century, from the turn of the century to the present. All genres will be considered. Classes will be conducted in Italian. (full course)

RUSSIAN

Associate Professor

Angelika-Tatiana Sidorov

Russian N-210 (211)

Introductory Course in Russian

A beginners' course in the Russian language which is designed to acquaint the student in one year with pronunciation, the main grammatical aspects and a basic vocabulary. Emphasis is placed on speaking, reading and writing Russian. Lectures and laboratory. (full course)

NOTE: Students whose first language is Russian, or whose schooling has been conducted in Russian, will not be admitted to this course. Students

who have credit for Russian 011, 015, 215 or N-215 may not take this course for credit.

Russian N-215 (215)

Reading Course in Russian

This course will give the student sufficient grasp of the structure of the language and sufficient basic vocabulary to be able to read Russian with the aid of a dictionary. Both technical and non-technical material will be used. (full course)

NOTE: Students whose first language is Russian, or whose schooling has been conducted in Russian, will not be admitted to this course.

Students who have credit for Russian 011, 015 or N-210 may not take this course for credit. This is a terminal course, and may not be used as a prerequisite for advanced courses in Russian.

Russian N-231 (411)

Advanced Russian Language and Stylistics

Prerequisite: Russian N-241 or permission of the instructor. This course is intended to give increased fluency and a firmer command of the language. The emphasis of the course is on stylistics and composition. Through additional reading the student is given the opportunity to acquaint himself with the various aspects of Russian civilization. Selected texts will be discussed and analysed in Russian. (full course)

NOTE: Students who have credit for Russian 091 may not take this course for credit.

Russian N-241 (212)

Intermediate Russian

Prerequisite: Russian N-210 or equivalent. This course consists of a complete review of Russian grammar, composition, reading and conversation. Through reading of short stories and additional material, the student is given the opportunity of acquainting himself with Russian culture and literature. (full course)

NOTE: Students whose first language is Russian, or whose schooling has been conducted in Russian, will not be admitted to this course.

Students who have credit for Russian 012 may not take this course for credit.

Russian N-451 (421)

Introduction to 19th Century Russian Literature through the Short Story

Prerequisite: Russian N-241 or equivalent. The short story will be used both as a subject for literary study and as a reflection of the history and social preoccupations of the period. Opportunity will be provided for discussion and some attention will be paid to composition. This course is conducted in Russian. (full course)

Russian N-452 (422)

Soviet Literature

Prerequisite: Russian N-241 or equivalent. A general survey of Soviet prose, drama, and poetry from 1917 to the present day. The aim of the course is to familiarize the student not only with the literature itself but also with its origins and development. Opportunity will be provided for discussions and some time will be devoted to advanced composition. This course is conducted in Russian. (full course)

Russian N-453 (423)

Russian Drama

Prerequisite: Russian N-241, or permission of the instructor. The course traces the development of Russian drama from the end of the 18th century to the present day. The following will be discussed: D. Fonvisin, A. Gribojedov, A. Pushkin, M. Lermontov, N. Gogol, A. Ostrowski, A. Chekhov, A. Tolstoi, M. Gorki, A. Afinogenov, L. Leonov. This course is conducted in Russian. (full course)

Russian N-454 (454)

Study of an individual Russian Author I

Prerequisite: Russian N-241 or equivalent. This course will consist of the detailed study of a Russian author, e.g. L.N. Tolstoy, F.M. Dostojevskii, N.V. Gogol. The chosen author will vary from time to time, in accordance with the needs of the students. (half course)

Russian N-455 (455)

Study of an Individual Russian Author II

Prerequisite: Russian N-241 or equivalent. This course will consist of the detailed study of a Russian author, e.g. A.S. Pushkin, M. Ju. Lermontov, I.A. Goncharov. The choice of author will vary from time to time, in accordance with the needs of the students. (half course)

SPANISH

Associate Professor of Spanish and Linguistics
John D. Grayson

Associate Professor of Spanish and Italian
Joseph A. Macaluso

Spanish N-201 (201)

Introduction to Spanish I (half course)

Spanish N-202 (202)

Introduction to Spanish II

These two half courses constitute a beginners' course in the Spanish language, which is designed to acquaint the student in one year with the main grammatical principles and basic vocabulary.

Practice is given in reading, writing and conversation, particular emphasis being placed on oral work. In the second term, classes are conducted as far as possible in Spanish. Lectures and laboratory. (half course)

NOTE: Students whose first language is Spanish, who have received credit for two years of high-school Spanish, or whose schooling has been conducted in Spanish, will not be admitted to this course. Students who have credit for Spanish N-210, 011, 110, 211 may not take these courses for credit. Spanish N-201 and N-202 are equivalent to two years' study at the secondary or collegiate level. *Students having one year of secondary or collegiate Spanish will register only for the second half-course, Spanish N-202.*

Spanish N-221 (429)

Spanish Civilization

Prerequisite: Spanish N-241 or equivalent. This course is designed to acquaint the student with Spain's intellectual and cultural history as reflected in her writers. Although it is primarily concerned with ideas and aesthetics, attention will also be given to the development of language, dialectology, customs and folklore. This course is conducted in Spanish. (full course)

NOTE: Students who have credit for Spanish 029 may not take this course for credit.

Spanish N-241 (212)

Spanish Language and Literature (Intermediate)

Prerequisite: Spanish N-210, or two or three years of high school Spanish, or equivalent. Included in this course are a complete review of Spanish grammar and a study of some of the more advanced aspects of usage. Through the reading of short stories and novels, the student is given the opportunity to acquaint himself with Spanish and Spanish-American letters and civilization. Classes will be conducted in Spanish. (full course)

NOTE: Students whose first language is Spanish, or whose schooling has been conducted in Spanish, will not be admitted to this course. Students who have credit for Spanish 012 may not take this course for credit.

Spanish N-411 (411)

Advanced Spanish Composition and Stylistics

Prerequisite: Spanish N-241. A course to treat in detail the finer points of Spanish stylistics. Special attention will be given to free composition and semantics. (full course)

Spanish N-451 (451)

The Middle Ages

Prerequisites: Spanish N-241 and any other '400'

level Spanish course. A study of the characteristics of Old Spanish, with readings in the literature of the Middle Ages. Ample practice is given in oral and written expression. Classes will be conducted in Spanish. (full course)

NOTE: Students who have credit for Spanish 422 before 1969-70 may not take this course for credit.

Spanish N-452 (426, 427)

El Siglo de Oro

Prerequisite: Spanish N-241; Spanish N-221 or equivalent. This course is designed to introduce to the student the masterpieces of Spain's Golden Age. Particular emphasis is given to Cervantes and the Quijote. This course is conducted in Spanish. (full course)

Spanish N-453 (453)

Nineteenth Century Spanish Literature

Prerequisite: Spanish N-241 or equivalent. A study of the work of representative writers of the period, with ample practice offered in oral and written expression. Classes will be conducted in Spanish. (full course)

NOTE: Students who have credit for Spanish 422 before 1969-70 may not take this course for credit.

Spanish N-454 (423)

Twentieth Century Spanish Literature

Prerequisite: Spanish N-241. A study of the literature of Spain, starting with the Generation of '98 and going up to the present day. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (full course)

Spanish N-455 (421)

The Literature of Spanish America

Prerequisite: Spanish N-241 or equivalent. The aim of this course is to familiarize the student with the history, political thought and civilization of Spanish America as expressed through her literature. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (full course)

ARABIC

Arabic N-411 (411)

Introduction to Arabic

This course is designed to give in one year the rudiments of the Arabic literary language. (full course)

NOTE: Students whose first language is Arabic or who have previously studied Arabic formally will not be admitted to this course.

III. LINGUISTICS

Associate Professor of Classics and Linguistics

Charles R. Barton

Associate Professor of Spanish and Linguistics

John D. Grayson

Linguistics N-221 (211)

Introduction to Linguistics

Prerequisite: Formal study of a language other than the student's mother tongue. This course will enable the student to become familiar with the basic elements which underlie all languages and will acquaint him with a number of varied linguistic patterns with emphasis on the analysis of languages having structural features which differ widely from those ordinarily encountered. (full course)

NOTE: Students who have credit for Linguistics 011 or 121 may not take this course for credit.

Linguistics N-421 (423)

Non-Indo-European Structures

Prerequisite: Linguistics N-221 or permission of the instructor. This course is intended to acquaint the student in depth with the structures of several languages differing markedly in their nature from Indo-European. Possible areas of study might be Eskimo, Finnish, Japanese, Swahili, Turkish, some Amerindian or Malayo-Polynesian language, etc. As a general rule, only four languages are investigated in a particular year. (full course)

Linguistics N-431 (421)

Comparative Indo-European Linguistics

Prerequisite: Linguistics N-221 or permission of the instructor. Through a comparative study of the phonology and morphology of the various branches of the Indo-European language family (Indo-Iranian, Hellenic, Italic, Germanic, Slavonic, Baltic, etc.), this course will familiarize the student with the techniques used in linguistic reconstruction. Emphasis will be given to the develop-

PORTUGUESE

Portuguese N-441 (411)

Portuguese Language and Literature

Prerequisites: Spanish N-241 or equivalent and any other '400' level Spanish course. A course designed for advanced Spanish students. Readings in Portuguese begin as early as the second week of class. (full course)

NOTE: Students whose first language is Portuguese or who have previously studied Portuguese formally will not be admitted to this course.

ment and differentiation of languages through time. (full course)

Linguistics N-441 (422)

Advanced Linguistic Theory

Prerequisite: Linguistics N-221. A study of current trends in linguistic theory with particular emphasis on transformational-generative and stratificational theory. The influence of de Saussure on present-day theoretical developments will be considered as well as that of the American structuralists. Tagmemic theory and case grammar will also be discussed. (full course)

Linguistics N-490 (490)

Special Topics in Linguistics

Prerequisite: Linguistics N-221 or equivalent.

This course offers an opportunity for detailed examination of a particular area of Linguistics. (full course)

NOTE: A student may take this course twice for credit, provided that a different subject is dealt with the second time. A student repeating Linguistics N-490 for credit will register under Linguistics N-491.

Linguistics N-491 (491)

Special Topics in Linguistics

Prerequisite: Permission of the Department. A student repeating Linguistics N-490 a second time registers for credit under Linguistics N-491. (full course)

ENGLISH

*Professor and
Chairman of the Department*
Rytza Tobias
Professors
Wynne Francis
Matthew J.C. Hodgart
Rachel Wasserman
Associate Professors
Henry E. Beissel
Roslyn Belkin
Michael Brian
Audrey Bruné
Mervin Butovsky
Howard Fink
Malcolm B. Foster
Stanton de Voren Hoffman

L. Elizabeth MacLean
David B. McKeen
Leonard Mendelsohn
G. David Sheps
Richard J. Sommer
Anne M. Stokes
Assistant Professors
Gerald M. Auchinachie
Roger A. Bird
Clark L. Blaise
David Ketterer
Patricia Morley
Edward Pechter
Lewis J. Poteet
Abraham Ram
Eyvind Ronquist
Special Lecturer
Mildred Brocklehurst

English N-201 (201)

English Language and Composition

This course is designed for students who have completed secondary school or the equivalent in a language other than English and for whom, therefore, English is a secondary tongue. (full course)
NOTE: Students who have credit for English N-211 may not take this course for credit. See explanation on page 36.

English N-211 (211)

College Composition

This course encourages the development, through practice in the skills of writing, of an effective prose style, to enable the student to work effectively at the college level and beyond. (full course) (evening only)

English N-217 (217)

Western Literary Backgrounds

A study of the traditions that underlie the modern language literatures through readings from, for example, The Bible, Classical Mythology (epic and drama), Aristotle's Poetics, Platonic dialogues, Dante, etc. (half course)
NOTE: Students who have credit for English 017 may not take this course for credit.

English N-219 (219)

Creative Writing (Prose)

A study of the creative and technical problems of the short story; analysis and criticism of the student's own work. (full course)
NOTE: Students who have credit for English 019 may not take this course for credit.

English N-221 (221)

Introduction to English Literature

The first-year course studies the development of English literature from Chaucer to the present. Students are expected to attend regular conferences in addition to the lectures. (full course) (evening only)

English N-222 (222)

Literature and the Modern World

Intended primarily for students in Science, Commerce or Engineering, this introductory course is devoted mainly, although not exclusively, to a study of the literature of this century. Students are expected to attend regular conferences in addition to the lectures. (full course) (evening only)

English N-240 (240)

European Literature from the end of the Middle Ages to the onset of Modernism

A study of some of the classical works of European literature from Dante to Dostoevsky, including such writers as Boccaccio, Rabelais, Rousseau and Goethe, with emphasis on evolving cultural patterns leading from Faith to Reason and beyond. (full course)

NOTE: Students who have credit for English 040, 241 or 242 or 243 may not take this course for credit.

English N-244 (244)

Canadian Literature

This course provides for the study of Canadian prose and poetry written in or translated into English. Particular emphasis is placed upon contemporary writers. (For a similar and complementary course in French, see French N-331.) (full course)

NOTE: Students who have credit for English 044 may not take this course for credit.

English N-253 (253)

Shakespeare

A study of Shakespeare's achievements as dramatist and poet, and the relationship of his work to the social and literary traditions of his day.

Shakespeare's work as a whole will be surveyed in some detail: close attention will be paid to some five or six plays and to the Sonnets. (full course)

NOTE: Students who have credit for English 053 may not take this course for credit.

English N-261 (261)

Introduction to Poetry

A study of poetry and its forms with emphasis upon the art of close reading. (half course)

NOTE: Students who have credit for English 061 may not take this course for credit.

English N-265 (265)

Introduction to European Drama

A study of the European dramatic tradition from the beginning of Greek tragedy to the end of the nineteenth century. (full course)

NOTE: Students who have credit for English 065 may not take this course for credit.

English N-266 (266)

The Short Story

A study of the forms and techniques of short fiction. (half course)

NOTE: Students who have credit for English 066 may not take this course for credit.

English N-277 (277)

Popular Culture and the Mass Media

A historical, theoretical and critical introduction to such characteristic modern media as newspapers, best-selling fiction, magazines, movies, popular music, radio and television. (full course)

NOTE: Students who have credit for English 077 may not take this course for credit.

English N-411 (411)

Non-Fiction Writing

This course is designed for students already in control of the basic techniques of composition who wish to further develop their ability in writing in a variety of genre, including feature articles, news stories, biographies, reports and reviews. Students' work is analyzed and evaluated by the instructor and fellow classmates in a workshop setting. (full course)

NOTE: Students who have credit for English 212 or English 091 may not take this course for credit.

English N-418 (418)

Creative Writing (Poetry)

Prerequisite: Second year standing. This course offers advice and a critical reading of the work of advanced students with a special interest and ability in written expression. (full course)

NOTE: This course is open to undergraduates only.

English N-419 (419)

Advanced Creative Writing (Prose)

Prerequisite: Second year standing. This course offers advice and a critical reading of the work of advanced students with a special interest and ability in written expression. (full course)

English N-431 (431)

Literature of the English Renaissance

A study of English literature from Wyatt to Marvell, excluding drama. (full course)

English N-434 (434)

English Literature of the Restoration and 18th Century

A study of English literature from 1660 to 1780. (full course)

English N-435 (435)

English Literature of the Romantic Period

A study of prose and poetry from Blake to Keats. (full course)

English N-436 (436)

Victorian Literature

A study of the works of major writers in England from 1830 to 1900. (full course)

English N-437 (437)

Modern British and American Literature

A study of literature in English since 1900. (full course)

English N-444 (444)

Canadian Literature (Advanced)

Prerequisite: English N-244. A study at a more advanced level than is possible in English N-244 of a limited number of major Canadian writers. (full course)

English N-445 (445)

American Literature

A study of American prose and poetry from colonial times to the twentieth century. (full course)

English N-446 (446)

Modern European Literature

A study of the work (in translation) of major European writers from 1880 to the present. (full course)

English N-447 (447)

American Literature (Advanced)

Prerequisite: English N-445. A limited aspect of American literature will be studied intensively. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under English N-449.

English N-448 (448)

Canadian Fiction

Prerequisite: English N-244. A study of selected writers in the modern Canadian short story and novel. (half course)

English N-449 (449)

American Literature (Advanced)

Prerequisite: English N-445. A student repeating

English N-447 a second time registers for credit under English N-449. (half course)

English N-453 (453)

Shakespeare (Advanced)

Prerequisite: English N-253. An advanced study of a limited number of plays. (half course)

English N-454 (454)

Chaucer and his Contemporaries

A study of the work of Chaucer and a few of his major contemporaries. (full course)

English N-455 (455)

Milton: The Puritan as Poet

A study of Milton's poetry, informed by the aesthetic principles articulated in his prose and guided by his acknowledged admiration for Spenser. (full course)

English N-461 (461)

Modern Poetry

Prerequisite: Second year standing. A study of the works of major poets in the English language in the twentieth century. (full course)

English N-462 (462)

The Modern Drama

Prerequisite: Second year standing. A study of drama since Ibsen in Europe, Britain and America. (full course)

NOTE: Students who have credit for English 262 may not take this course for credit.

English N-463 (463)

The English Novel

A study of the origin and development of the English novel to the end of the nineteenth century with special emphasis on readings from Defoe to Henry James. (full course)

English N-464 (464)

Contemporary Literature

Prerequisite: Second year standing. A study of various aspects of contemporary literature. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under English N-465.

English N-465 (465)

Contemporary Literature

Prerequisite: Second year standing. A student repeating English N-464 a second time registers for credit under English N-465. (half course)

English N-467 (467)

Literary Criticism

Prerequisite: Second year standing. This course offers both a history of literary criticism from antiquity to the present and studies in the practice of the best contemporary critics. (full course)

English N-468 (468)

English Renaissance Drama

A study of the English drama in the 16th and 17th centuries. (full course)

English N-471 (471)

Honours Essay

Prerequisite: open to third-year honours students or to others by permission of the Department. Under the supervision of a faculty member, students will write a scholarly critical essay of some 7,500 to 10,000 words. (half course)

English N-474 (474)

Bibliography and Methodology

Prerequisite: Second year standing. A course designed to acquaint students with research tools and techniques. (half course)

English N-475 (475)

The Religious and Aesthetic Experience in Literature

Prerequisite: Second year standing. A seminar course which explores the relationship between literature and religious experience. (full course)

English N-481 (481)

Anglo-Saxon

A study of language and literature in the Anglo-Saxon era. (full course)

English N-483 (483)

Middle English

A study of the language and literature of England from the twelfth to the fifteenth century (excluding Chaucer). (full course)

English N-492 (492)

Advanced Seminar in a Special Subject

Prerequisite: Second year standing. This course is designed to provide an opportunity for cooperative study and discussion of literature at a relatively advanced level. It is taught, from year to year, by different members of the English department, and the subject changes to accord with the special interests of each instructor. (full course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under English N-493.

English N-493 (473)

Advanced Seminar in a Special Subject

Prerequisite: Second year standing. A student repeating English N-492 a second time registers for credit under English N-493. (full course)

English N-496 (496)

Advanced Seminar in a Special Subject

Prerequisite: Second year standing. This course is designed to provide an opportunity for cooperative study and discussion of literature at a relatively advanced level. It is taught, from year to year, by different members of the English Department, and the subject changes to accord with the special interests of each instructor. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under English N-497.

English N-497 (497)

Advanced Seminar in a Special Subject

Prerequisite: Second year standing. A student repeating English N-496 for a second time registers for credit under English N-497. (half course)

Cognate Course

Linguistics N-211

Introduction to Linguistics

Teaching of English as a Second Language (TESL)

Associate Professor and Director of TESL

Anne Stokes

Special Lecturer

Mildred Brocklehurst

NOTE: Students will register for all courses as an integrated program.

Applied Linguistics N-421 (221)

Teaching Methods

A course on the practical application of various teaching methods with emphasis on audio-visual techniques. Teachers will be shown how to prepare lesson plans and how to use their classroom texts to maximum advantage. (full course)

Applied Linguistics N-431 (231)

Grammatical Theory

A study of the underlying principles of modern English grammar and their relation to second language teaching. A contrastive approach to morphological and syntactic structures will be used, and the uses of transformational grammar as a

means of determining the deep structure of English will be explored. (half course)

Applied Linguistics N-441 (241)

Comparative Phonetics

A study of the phonetic and phonemic features of

English, and the methodology of corrective phonetic practice for the non-native speaker. A comparison of the phonological systems of English and French will be emphasized, but points of conflict between English and certain other languages, and methods of reducing interference, will also be discussed. (half course)

FINE ARTS

*Professor and
Chairman of the Department*
Edwy F. Cooke
Professor of Music in Residence
Franz-Paul Decker
Professors
Alfred Pinsky
Leah Sherman
Associate Professors
Yves J. Gaucher
Stanley Horner
Judith Kelly
F.J. Miller
Frank Mulvey
John Ivor Smith
Norma Springford
Visiting Associate Professor
J. Russell Harper
Assistant Professors
Donald Andrus

F. Graeme Chalmers
Philip Cohen
Gary W. Coward
Christopher Gabriel-Lacki
Helen Gagné
Jean Goguen
Ellen James
Dennis Jones
H.W. Jones
William G. Simon
Walter K. Sloan
Jerry Smoke
Barry Wainwright
Visiting Assistant Professor
G. Molinari
Special Lecturer
Orson Wheeler
Sessional Lecturer
Sandra Paikowsky

Studio Course Prerequisites in Visual Arts

A student intending to pursue a major or joint major involving studio Visual Arts courses, but who does not have the CEGEP prerequisites, may in exceptional cases be admitted to the program, but must take Art N-331 and Art N-332 in the first year.

The prerequisite for all other studio courses in Visual Arts is: CEGEP Studio Art, or Art 001 and 002 or the equivalent. A student without this background must take Art N-331 and N-332 as prerequisite to other studio courses in Visual Arts

Art N-210 (211)

Image and Idea, Drawing

Prerequisite: CEGEP Studio Art or Art 001 and 002 or the equivalent. An exploration of drawing as space, the figure, visual skills, graphic image. (half course)

Art N-211 (211)

Image and Idea, Painting

Prerequisite: CEGEP Studio Art or Art 001 and 002 or the equivalent.

An exploration of painting, colour, style, image, visual skills, and the basic technology of painting materials. (half course)

Art N-232 (232)

Introduction to Architecture and Sculpture

To enable the student to understand and appreciate great works in architecture and sculpture, and to develop a discriminative understanding of three-dimensional form in design and in his architectural environment, the main types, styles, and techniques of these arts are explained and illustrated. To understand their significance, the student is encouraged to become familiar with great examples of these arts through pictorial reproductions, slides, models, museum visits, and field trips. (full course)

NOTE: Students who have credit for Art 032 may not take this course for credit.

Art N-240 (240)

Introduction to Art History

A study of selected works which represent outstanding and significant achievements in the visual arts. (full course)

NOTE: Students who have had the CEGEP equivalent of Art N-240 need not take it as part of their major program but may elect to take it with the permission of the Department.

Art N-249 (249)

Canadian Sculpture and Architecture

A study of the more important developments of Canadian architecture and sculpture from indigenous forms to contemporary work. (full course)

NOTE: Students who have credit for Art 049 may not take this course for credit.

Art N-251 (251)

Art For Classroom Use

A practical and theoretical course of particular use to teachers and those interested in early childhood development. Concepts of art education, the use of materials and techniques are considered in relation to classroom situations. Students are introduced to various art media including painting, collage, construction, printing and modelling. The course includes the use of slides, films and selected readings. (full course)

Art N-311 (411, 412, 414)

Painting

Prerequisite: Art N-211. A course in which various media and forms of expressions will be explored at the more advanced level. (half course)

NOTE: A student continuing Art N-311 registers for credit under Art N-312, N-411, N-412, N-413, N-414 consecutively.

Art N-312 (see Art N-311)

Art N-321 (221, 421, 422)

Sculpture

Prerequisites: CEGEP Studio Art or Art 001 and 002 or the equivalent. First works are generally in traditional materials (clay, plaster, wood, concrete, steel, etc.) but in fact, any materials may be used. (half course)

NOTE: A student continuing Art N-321 registers for credit under Art N-322, N-421, N-422, N-423, N-424 consecutively.

Art N-322 (see Art N-321)

Art N-331 (331)

Studio Art I

An introduction to studio art including drawing, painting, design, sculpture and related media. (half course)

Art N-332

Studio Art II

Prerequisite: Art N-331.

Continuation of Art N-331. (half course)

NOTE: Students who have credit for Art N-360 (360) may not take this course for credit.

Art N-338 (497)

Photography

Prerequisites: CEGEP Studio Art or Art 001

and 002 or the equivalent. The use of photography and light as a source of image, ideas. (half course)

NOTE: With the permission of the Department a student may take this course twice for credit. He will register the second time for credit, under Art N-438.

Art N-341 (241)

Art in the Ancient World

This course will consider the emergence of art and architecture in the ancient world, giving particular attention to developments in Egypt, Greece and Rome. (full course)

Art N-342 (242)

The Renaissance in Italy

A survey of painting, sculpture and architecture in Italy during the fifteenth and sixteenth centuries. (full course)

Art N-343 (243)

The History of Nineteenth Century Art

Prerequisite: Art N-240. Starting with the French Revolution and Neo-Classicism, this course will examine Romanticism, Realism, Naturalism, Impressionism, Post-Impressionism and other nineteenth century movements leading up to the emergence of Fauvism in the twentieth century. (full course)

Art N-345 (245)

Art in the Twentieth Century

Prerequisite: Art N-240. Commencing with Cubism, this course will examine the main movements and trends which have occurred in western art during this century. Special emphasis will be given to the contemporary scene. (full course)

Art N-370 (490)

Design

Prerequisites: CEGEP Studio Art or Art 001 and 002 or the equivalent.

The dynamics and structures of two and three-dimensional design. (half course)

NOTE: A student continuing Art N-370 registers for credit under Art N-470 the second time.

Art N-371 (491, 492, 493, 494, 495)

Graphic Design

Prerequisite: Art N-370; it is recommended that students majoring in Graphic Design take Art N-370 and N-371 concurrently. The application of visual ideas to communication processes. (half course)

NOTE: A student continuing Art N-371 registers for credit under Art N-372, N-373, N-374, N-471, N-472, N-473, N-474, N-475, N-476.

Art N-372 (see Art N-371)
 Art N-373 (see Art N-371)
 Art N-374 (see Art N-371)

Art N-381 (281, 481, 482)

Graphics

Prerequisite: Art N-210. An introduction to the graphic media; the history of the graphic arts and their relationships with other art forms. The student will investigate and experiment with various approaches, both traditional and contemporary. (half course)

NOTE: A student continuing Art N-381 registers for credit under Art N-382, N-481, N-482, N-483, N-484 consecutively.

Art N-382 (see Art N-381)

Art N-400 (410)

Drawing

Prerequisite: Art N-210. A drawing course in which various media and forms of expression will be explored at the more advanced level. Lectures and studio periods. (half course)

NOTE: A student continuing Art N-400 registers for credit under Art N-401 the second time.

Art N-401 (see Art N-400)

Art N-411 (see Art N-311)

Art N-412 (see Art N-311)

Art N-413 (see Art N-311)

Art N-414 (see Art N-311)

Art N-421 (see Art N-321)

Art N-422 (see Art N-321)

Art N-423 (see Art N-321)

Art N-424 (see Art N-321)

Art N-430 (452)

Multi-Media

Prerequisites: Four studio courses, registration in art education major or permission of the Department. The technology of video, film, slides, sound, etc. as media for the artist and art educator. (half course)

Art N-432 (452)

Crafts

Prerequisites: Four studio courses, registration in art education major or permission of the Department. The basis of crafts such as ceramics, textiles, batik, etc. as potential media for the artist and art educator. (half course)

Art N-433 (433)

Materials and Methods of the Artist

Prerequisite: Permission of the Department. Through a series of special projects this course will familiarize the student with some of the various materials, techniques and other aspects of the artist's craft. Since special emphasis will be given to historical techniques, this course is particularly recommended for all students in art history. Lectures and studio periods. (half course)

NOTE: A student continuing Art N-433 registers for credit under Art N-434 the second time.

Art N-434 (see Art N-433)

Art N-438 (497)

Photography

Prerequisite: Permission of the Department. A student repeating Art N-338 for a second time registers under Art N-438 for credit. (half course)

Art N-441 (441)

The History of Medieval Art

Prerequisite: Art N-240. This course will survey the growth of European art from early Christian times through the fourteenth century. (full course)

Art N-442 (442)

The Renaissance in Northern Europe

Prerequisite: Art N-240 or Art N-342. This course will investigate the development of art in France, Flanders, Germany and Austria in the fifteenth and sixteenth centuries. (full course)

Art N-443 (443)

History of Baroque and Rococo Art

Prerequisite: Art N-240. This course will investigate the major achievements in Dutch, Flemish, English, French, Italian, Spanish, German and Austrian art and architecture in the seventeenth and eighteenth centuries. (full course)

Art N-444 (444)

The Arts in Canada

Prerequisite: Art N-240. A history of the arts in Canada from the 17th century to the present day. Where relevant, special attention will be given to those European and American influences which have shaped its growth. (full course)

Art N-445 (445)

American Art and the European Background

Prerequisite: Art N-240. A survey of American Art from earliest colonial times into the 20th century, viewed against the background of those European developments which have significantly affected it. (full course)

Art N-446 (446)

History of Modern Architecture

An examination of the major building styles from the Georgian era through the 20th century with emphasis on the contributions of individual architects from Louis Sullivan to Mies van der Rohe. (full course)

Art N-447 (447)

Special Studies in the History of Art

Prerequisites: Two courses in art history. Students in this course will examine and discuss selected aspects of art history. The areas chosen for consideration will vary from year to year according to the instructor's field of specialization. All students will be required to undertake research projects, and to submit papers based on their investigations. (full course)

Art N-448 (448)

Special Topics in Art History

Prerequisites: Two full courses in Art History or permission of the Department. A seminar for advanced students which will provide an opportunity for the study of limited and more specialized aspects of Art History. (half course)

NOTE: With the permission of the Department a student may take this course twice for credit. He will register the second time for credit under Art N-449.

Art N-449 (449)

Special Topics in Art History

Prerequisite: Permission of the Department. A student repeating Art N-448 for a second time registers under Art N-449 for credit. (half course)

Art N-450 (450)

Seminar in Art Education

Prerequisite: For art education majors or permission of the Department. The development of a philosophy of art education on the basis of studio experiences, readings, the observation of and participation in teaching situations, etc. (full course)

Art N-460 (431)

Analysis of Great Works of Art

A course in art principles, through the formal analysis of selected masterpieces of painting and sculpture. The student is led to a fuller comprehension of the nature of formal order in the arts. (full course)

Art N-461 (461)

Introduction to Aesthetics

This course provides an introduction to the philosophy and psychology of aesthetics. Topics will include the nature of beauty and art, aesthetic

experience, symbolic thinking and expression, art as symbolic activity, art as communication and the principles of formal organization underlying all the arts: music, poetry, drama, sculpture, and painting. (full course)

Art N-470 (see Art N-370)

Art N-471 (see Art N-371)

Art N-472 (see Art N-371)

Art N-473 (see Art N-371)

Art N-474 (see Art N-371)

Art N-475 (see Art N-371)

Art N-476 (see Art N-371)

Art N-481 (see Art N-381)

Art N-482 (see Art N-381)

Art N-483 (see Art N-381)

Art N-484 (see Art N-381)

MOVING PICTURES

NOTE: Students are required to bear the cost of film and other materials.

Moving Pictures N-211 (Cinema 257)

History of the Film

A study of the history of the film from its beginning to the present. The forms, functions, aesthetics and technology of the film will be dealt with through the examination of individual works. (full course)

NOTE: Students who have credit for Cinema 057 may not take this course for credit.

Moving Pictures N-212 (Cinema 258)

Film Aesthetics

A study of the aesthetics of the film. Symbolism, realism, expressionism, abstraction and other forms of film art will be studied in relation to the great schools and theoreticians in the field. (full course)

NOTE: Students who have credit for Cinema 058 may not take this course for credit.

Moving Pictures N-311 (Cinema 211)

The Art of Film-making I

Prerequisite: Moving Pictures N-211 or N-212 previously or concurrently and permission of the Department. An introductory course in the theory and practice of film-making. This course will stress the individual student's creative efforts. Lectures and laboratory periods. (full course)

Moving Pictures N-312 (Cinema 212)

Animation Cinema

Prerequisites: Moving Pictures N-311 and permission of the Department. An introduction to the theory and practice of animation. Lectures and laboratory periods. (full course)

Moving Pictures N-411 (Cinema 411)

The Art of Film-making II

Prerequisites: Moving Pictures N-311 and permission of the Department. An intermediate course in the theory and practice of film-making. The course will stress the individual student's creative and experimental efforts. Lectures and laboratory periods. (full course)

Moving Pictures N-412 (Cinema 412)

The Art of Film-making III

Prerequisites: Moving Pictures N-311 and N-212 and permission of the Department. The completion of an advanced film project including its writing, design, production and editing. (full course)

Moving Pictures N-420 (420)

Special Topics in Cinema

Prerequisite: Two full courses in Moving Pictures or permission of the Department. A course for advanced students which will provide an opportunity for the study of limited and more specialized aspects of cinema. (half course)

NOTE: With the permission of the Department a student may take this course twice for credit. He will register the second time for credit under Moving Pictures N-421.

Moving Pictures N-421 (421)

Special Topics in Cinema

Prerequisite: Permission of the Department. A student repeating Moving Pictures N-420 for a second time registers for credit under Moving Pictures N-421. (half course)

Moving Pictures N-431 (Cinema 431)

Sound

Prerequisites: Moving Pictures N-311 and permission of the Department. Creative and experimental exercises in the use of sound with moving images. (full course)

MUSIC

Music N-231 (231, 131)

Study in a Selected Area

Prerequisite: Permission of the Department. An "instruction on request" plan that offers the opportunity for individual or group instruction in an approved area of music with a qualified teacher of the student's choice. Examinations are set by the Department. Students should understand that fees will vary with individual instructors. (half course)

NOTE: A student continuing Music N-231 registers for credit under Music N-331 and Music N-431.

Music N-235 (234)

Materials, Structure and Media

Prerequisite: CEGEP Music program or equivalent, or permission of the Department. A survey of the organization and uses of sound materials. The study combines composition for various media with analysis and guided listening. While the context is broadly historical and cross-cultural, particular emphasis is given to contemporary developments, including music for film and T.V. Classroom and guided listening. (full course)

NOTE: Students who have credit for Music 034 or 235 may not take this course for credit.

Music N-245 (245, 145)

Music History and Society

A survey of musical styles in their social context, from pre-history to the present day. While the emphasis is on the mainstream of the western tradition, attention is also given to folk, popular and jazz styles, as well as the music of other cultures. (full course)

NOTE: Students who have credit for Fine Arts 245 or Music 045 or 145 may not take this course for credit.

Music N-321 (423)

Aural Perception

A self-paced program in ear training. Skills are developed through concentrated work with electronic, mechanical, and natural as well as traditional sound materials. Classroom and laboratory. (half course)

NOTE: With permission of the Department, a student may take this course twice for credit. He will register the second time for credit under Music N-322.

Music N-322 (424)

Aural Perception

Prerequisite: Permission of the Department. A student repeating Music N-321 for a second time registers for credit under Music N-322. (half course)

Music N-331 (see Music N-231)

Music N-335 (271, 431, 461)

Composition

Prerequisite: Music N-235 or equivalent or permission of the Department. A self-paced program that aims at developing skill in composition through a variety of forms, styles, textures and media. Classroom and laboratory. (full course)

Music N-341 (441)

Topics in History and Literature of Music

Prerequisites: One full course in music or permission of the Department. A study of a selected period or area. The topic covered changes with each semester. (half course)

NOTE: With permission of the Department a student may take this course twice for credit. He will register the second time for credit under Music N-342.

Music N-342 (441)

Seminar in History and Literature of Music

Prerequisite: Permission of the Department. A student repeating Music N-341 for a second time registers for credit under Music N-342. (half course)

Music N-343 (443)

Introduction to Non-Western Music

Prerequisite: Permission of the Department. A survey of the art, religious and folk music of non-European cultures. The study includes an examination of cross-cultural parallels and influences, instruments, notations, textures, techniques of performance and problems of interpretation. Illustrated with recordings and slides. (half course)

Music N-431 (see Music N-231)

Music N-345 (445)

Folk Music of North America

Prerequisite: Permission of the Department. A survey of the roots and development of traditional music in Canada, the United States, Mexico, Central America and the Caribbean. Areas covered include aboriginal, transplanted and hybrid forms; urban and rural musics; transcription and arrangement; the influence of folk music on popular art styles; ethno-musicological method. Illustrated with recordings, slides, and whenever possible live performances. (half course)

Music N-351 (251)

Stylistic and Formal Analysis

Prerequisites: Two full courses in Music or permission of the Department. A comparative study of selected works representing various forms, styles and historical periods. (half course)

NOTE: With the permission of the Department a student may take this course twice for credit. He will register the second time for credit under Music N-352.

Music N-352 (251)

Stylistic and Formal Analysis

Prerequisite: Permission of the Department.

A student repeating Music N-351 for a second time registers for credit under Music N-352. (half course)

Music N-421 (421)

Music in Education

Prerequisite: Permission of the Department. This course is designed to give the student a working knowledge of contemporary techniques of group instruction in music. At least one established or experimental method is covered in some depth; for example, Orff, Kodaly, Dalcroze, Martentot, Schafer, Dennis. While the main emphasis is on the cultivation of musicality in the pre-school and elementary school child, the implications for music education in general are also explored. Classroom work includes opportunities for demonstration and practice teaching. (full course)

Music N-435 (271, 431, 461)

Composition

Prerequisite: Permission of the Department. A student repeating Music N-335 for a second time registers for credit under Music N-435. (full course)

Music N-465 (465)

Seminar in Performance

Prerequisite: Permission of the Department. This course examines selected problems in the development of performance skills. The areas covered are, whenever possible, determined by the specific interests of students. Topics for consideration include: technique; practice; style; interpretation; accompaniment; ensemble; teaching children; the adult student. (half course)

NOTE: With permission of the Department, a student may take this course twice for credit. He will register the second time for credit under Music N-466.

Music N-466 (465)

Seminar in Performance

Prerequisite: Permission of the Department. A student repeating Music N-465 for a second time registers for credit under Music N-466. (half course)

Music N-471 (471)

Independent Study

Prerequisite: Permission of the Department. An independent study intended primarily for the student who wishes to do research in an area of his own choice. He may alternatively elect to compose a large scale work or perform an approved program in public recital. Staff members will be available for consultation. (half course)

NOTE: With permission of the Department,

a student may take this course twice for credit. He will register the second time for credit under Music N-472.

Music N-472

Independent Study

Prerequisite: Permission of the Department. A student repeating Music N-471 for a second time registers for credit under Music N-472. (half course)

Music N-485 (485)

Contemporary Idioms and Media

Prerequisite: Permission of the Department. A study in depth that may be explored either independently or in a group. The topic will change with each semester, with the emphasis weighted variously toward electronic composition, films, T.V. and stage music, jazz, including "third stream" hybrids with "art" styles, improvisation and chance, etc. Whenever possible chamber ensembles will be formed for public performance of student works. (half course)

NOTE: With permission of the Department, a student may take this course twice for credit. He will register the second time for credit under Music N-486.

Music N-486

Contemporary Idioms and Media

Prerequisite: Permission of the Department. A student repeating Music N-485 for a second time registers for credit under Music N-486. (half course)

THEATRE ARTS

Theatre Arts N-212 (212)

Stage Design I

An introductory course in the design of stage scenery. Lectures and studio periods. (full course)

NOTE: Students who have credit for Fine Arts 212 or Drama 212 may not take this course for credit.

Theatre Arts N-247 (247)

The History of the Theatre

Study of the development of theatrical production and the drama brings before the student the whole shifting scene of manners and customs, ideals and moral standards of the ages. This course traces the development of the theatre from the time of the modern talking-picture and legitimate stage, showing at each step how the culture of that age has been condensed and reflected in the vital and

permanent art form of the theatre. (full course)

NOTE: Students who have credit for Fine Arts 247, or Theatre Arts 047, or Drama 247 may not take this course for credit.

Theatre Arts N-255 (252)

The Arts of Play Production I

A study of the theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in a practical program of one-act productions which will entail work in acting, staging, lighting and scenic design. Lectures, labs and rehearsals. (full course)

NOTE: Students who have credit for Fine Arts 252 or Drama 252 may not take this course for credit.

Theatre Arts N-312 (412)

Stage Design II

Prerequisite: Theatre Arts N-212. A seminar in the conception and expression of space, form and movement on the stage through visual knowledge and use of light. (full course)

Theatre Arts N-315 (215)

Costuming for the Theatre

An introductory course in costuming for the theatre. Emphasis on history and construction. Students will participate in costuming productions for the Theatre Arts Section. Lectures and labs. (full course)

Theatre Arts N-331 (231)

Creative Drama in the Schools I

Prerequisite: Theatre Arts N-255. Principles of creative drama for elementary, intermediate and high schools. Theories and practices of techniques and direction. Lectures and labs. (full course)

Theatre Arts N-340 (440)

Theatre Administration

Prerequisite: Second year standing. A course in theatre administration covering office and plant management, production, touring, and prepackaged plant costing; contracts, insurances, budgeting and seasonal planning; lectures with actual case studies in depth. (full course)

Theatre Arts N-355 (455)

The Arts of Play Production II

Prerequisite: Theatre Arts N-255. A study of the theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in mounting major productions for the Theatre Arts Section which will entail work in acting, staging, lighting and scenic

design. Lectures, labs and rehearsals.
(full course)

NOTE: Students who have credit for Drama 455 may not take this course for credit.

Theatre Arts N-413 (413)

Special Theatre Arts Techniques

Prerequisite: Theatre Arts N-212 and N-255.

A seminar for advanced theatre arts students in make-up, masks, sound and special effects; property-making with special emphasis on the usage of contemporary and found materials. This course will be divided into units covering the above subjects and will draw upon guest lecturers from the profession and industry. (full course)

Theatre Arts N-421 (421)

Voice and Speech

Prerequisite: Theatre Arts N-255. The theories and practices of communication for the theatre with emphasis on voice mechanics and production. Lectures and practice. (full course)

NOTE: Students who have credit for Drama 421 may not take this course for credit.

Theatre Arts N-431 (431)

Creative Drama in the Schools (Intermediate)

Prerequisite: Theatre Arts N-331. Discussions and demonstrations of theatre techniques of particular use in elementary, intermediate and high school drama. (full course)

Theatre Arts N-455 (456)

The Arts of Play Production III

Prerequisite: Theatre Arts N-355. A study of the advanced theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in a practical program of productions which will entail work in acting, staging, voice production, pantomime, make-up, lighting and scenic design. Lectures and practice. (full course)

NOTE: Students who have credit for Drama 456 may not take this course for credit.

Cognate Course

Archaeology N-211

Introduction to Archaeology I

Evening Non-Credit Program

Art N-151 (151) (non-credit)

Life Drawing

A course in drawing using various media; quick sketches and long studies. This course stresses the development of personal interpretation.

Art N-152 (152) (non-credit)

Painting

Painting in various media. The elements of picture making will be considered. Individual and personal development will be stressed.

Art N-155 (155) (non-credit)

Portrait Sculpture

An introductory course with the emphasis on characterization and materials, and occasional figure studies.

FRENCH

*Associate Professor and Chairman
of the Department*

Paul J.H. d'Hollander

Professor of Cinematographic Art

Serge Losique

Associate Professors

Léandre Bergeron

Michel Euvrard

Pierre Parc

Gilbert C. Taggart

Assistant Professors

Albert Jordan

Claude Levy

Jean D. Schneider

Mair E. Verthuy

Where to start studies in French at the university level

French N-201 is designed for students who have had from zero to two years of high-school French in the Province of Quebec, or equivalent.

French N-211 is intended for students who have had four years of high-school French in the Province of Quebec, or equivalent.

French N-214 is intended for students who have reasonable fluency in French and who have taken a one-year course beyond high school containing a substantial amount of written French.

French N-310 is intended for students whose schooling at the high school level has been conducted in French.

Students who do not fall into one of these categories are asked to consult the Department of French.

Since university-level credit cannot be given for French conversation only, all language courses contain a varying quantity of written work, grammatical study and civilization material, as well as oral work.

French N-201 (201)

Beginners' French (Language I)

This course is designed for students who lack any previous training in French or who otherwise fail to meet the requirements for admission to French N-211. Intensive class instruction and laboratory drill should permit the student to master the basic structures of French in both their written and oral aspects. Satisfactory progress in this course will admit students to French N-211. Lectures and laboratory. (full course)

NOTE: Students who have received credit toward their admission for high-school French may not take this course for credit. Students whose first language is French, or whose schooling has been conducted in French, will not be admitted to this course. Any student who is not sure of his standing must consult the chairman of the department prior to registration. Students who have credit for French 001 may not take this course for credit.

Français N-211 (211)

Langue II et composition élémentaire

Prérequis: Français N-201, ou quatre ans de cours de français à l'école secondaire, ou équivalent. Ce cours, destiné aux étudiants ayant déjà une certaine préparation en français oral et écrit qui désirent parfaire leurs connaissances pratiques de la langue, comporte une étude intensive des structures au laboratoire, de nombreux devoirs écrits et l'analyse de certains textes français et québécois. La structure et le contenu du cours sont les mêmes pour toutes les sections, mais le choix des romans étudiés dépend de chaque professeur. (cours complet)

NOTE: Les étudiants dont la première langue est le français, ou qui ont fait leurs études en français, ne seront pas admis dans ce cours.

Les étudiants qui ont un crédit pour le français 011 ou 212 ne recevront pas de crédit pour ce cours.

Français N-214 (214)

Langue III et composition

Prérequis: Français N-211 ou 211 ou 011, ou équivalent. Ce cours permet d'acquérir plus d'aisance et de correction dans l'expression orale et écrite en français. Il convient particulièrement aux étudiants qui ont l'intention d'enseigner le français ou de se spécialiser dans cette langue. Ce cours, donné entièrement en français, comprend la rédaction de compositions sur des sujets

variés, des exposés oraux suivis de débats, l'étude de textes et de romans choisis par le professeur de chaque section, des exercices écrits menant à une meilleure connaissance de la grammaire et de la syntaxe. (cours complet)

NOTE: Les étudiants qui ont fait leurs études en français ne seront pas admis dans ce cours.

Les étudiants qui ont un crédit pour le français 014 ne recevront pas de crédit pour ce cours.

Français N-221 (221)

Panorama de la littérature française

Prérequis: Français N-214 ou équivalent. Aucun prérequis n'est exigé pour les étudiants qui ont fait leurs études en français. Ce cours s'adresse aux étudiants qui ont choisi la littérature française comme domaine de spécialisation principale ou secondaire. À côté d'un aperçu général de l'évolution de la littérature française des origines à nos jours, ce cours comprend une initiation aux techniques des études littéraires: principes de la versification, dissertation, explication de texte, etc... Les cours sont donnés en français et les travaux doivent être rédigés en français. (cours complet)

NOTE: Les étudiants qui ont un crédit pour le français 021 ne recevront pas de crédit pour ce cours. Nous recommandons aux étudiants de suivre ce cours en même temps que le français N-241.

Français N-222 (222)

La littérature française moderne

Prérequis: Français N-211 ou 211 ou 011, ou équivalent. Aucun prérequis n'est exigé pour les étudiants dont la première langue est le français. Ce cours est surtout destiné aux étudiants qui n'ont pas l'intention de se spécialiser en français et en particulier à ceux qui choisiraient leur cours obligatoire de littérature en littérature française. Le but du cours est d'encourager l'appréciation du roman comme oeuvre littéraire et comme expression significative de l'expérience occidentale des cent dernières années. (cours complet)

NOTE: Ce cours ne peut servir de prérequis à aucun autre cours.

Les étudiants qui ont un crédit pour le français 022 ne recevront pas de crédit pour ce cours.

Français N-241 (241)

Introduction à l'histoire de la culture et de la civilisation françaises

Prérequis: Français N-211 ou 211 ou 011, ou équivalent. Abondamment illustré de projections, ce cours a pour but essentiel d'amener les étudiants à replacer la littérature dans son contexte historique, social, politique et artistique. (cours complet)

Français N-310 (411)

Composition avancée I

Prérequis: Français N-214, ou équivalent. Ce cours traite des différentes méthodes de la composition française: description, narration et dissertation: un intérêt particulier est cependant accordé à cette dernière ainsi qu'à l'analyse de textes vu leur importance pour les étudiants qui songent à préparer mémoires et thèses. (cours complet)

NOTE: Les étudiants qui ont un crédit pour le français 091 ne recevront pas de crédit pour ce cours.

Français N-312 (412)

Histoire de la langue française

Prérequis: Français N-214. Ce cours retrace l'évolution de la langue du latin vulgaire au français contemporain. Les étapes successives de cette évolution sont illustrées par l'étude de textes appropriés. Le cours est donné en français. (cours complet)

Français N-313 (413)

La phonétique française

Prérequis: Français N-214, ou équivalent; crédit également admissible pour les étudiants dont la langue maternelle est le français: un crédit en langue ou en littérature françaises. Etude systématique des habitudes articulatoires du français en comparaison avec celles de l'anglais. Introduction aux principes de l'analyse phonologique; groupes consonantiques possibles ou impossibles dans les deux langues. Etude de l'aspect physiologique de la parole; propriétés des voyelles et des consonnes en français. Etude des phénomènes prosodiques: intonation, rythme, accent. Aperçu de la phonétique acoustique et expérimentale. (demi-cours)

Français N-314 (414)

Stylistique comparée et traduction

Prérequis: Français N-214 ou équivalent; crédit également admissible pour les étudiants dont la langue maternelle est le français: un crédit en langue ou en littérature françaises. Etude des ressources stylistiques du français par rapport à celles de l'anglais. Le passage entre les deux langues est étudié en fonction des tendances fondamentales de chaque langue, tant du point de vue grammatical et lexical que du point de vue du contexte culturel. Au cours de l'année, les étudiants doivent faire des exercices de stylistique comparée, des traductions de textes, soit vers le français, soit vers l'anglais et des analyses de traductions littéraires. (cours complet)

Français N-331 (231)

Littérature et culture canadiennes-françaises

Prérequis: Français N-211 ou 211 ou 011, ou

équivalent. Ce cours offre un aperçu général de l'histoire - politique, économique, sociale et culturelle - du Québec, toile de fond de la production littéraire; il analyse les courants nouveaux nés du processus de décolonisation et leurs reflets dans l'expression littéraire. (cours complet)

NOTE: Les étudiants qui ont un crédit pour le français 031 ne recevront pas de crédit pour ce cours.

Français N-381 (481)

Méthodologie de l'enseignement du français

Prérequis: Français N-214, ou équivalent, et une certaine expérience de l'enseignement du français, ou la permission du département. Le premier semestre est consacré à l'analyse des problèmes théoriques de l'enseignement du français, langue seconde. Le mécanisme de l'interférence dans les domaines de la phonétique, de la morphologie et de la syntaxe est étudié ainsi que les questions d'ordre psychologique telles que la motivation et les "lois" de l'apprentissage. Le deuxième semestre est réservé à l'examen de diverses méthodes avec démonstrations, classes modèles, etc. (cours complet)

Français N-410 (410)

Composition avancée (II) et stylistique

Prérequis: Français N-310. Le cours se divise en trois parties: l'analyse stylistique proprement dite (définitions et procédés du style); une étude des grands genres littéraires et de leur évolution; des exercices commentés et critiqués de "creative writing". Selon leurs rapports, ces trois aspects du cours seront examinés parallèlement. (cours complet)

Français N-415 (415)

Traduction avancée

Prérequis: Français N-310 et N-314 pris antérieurement ou simultanément. Analyse approfondie de procédés stylistiques du français et de l'anglais. Etude des problèmes posés par les niveaux de langues et l'expression individuelle des auteurs. Travaux personnels et recherches en groupes. (cours complet)

Français N-417 (417)

Linguistique structurale du français contemporain

Prérequis: Français N-310 ou la permission du département. Analyse descriptive de la structure linguistique du français contemporain. Etude des aspects phonémiques, morphosyntaxiques et lexicaux de la langue considérés comme un système. Applications théoriques et pratiques. (cours complet)

Français N-418 (418)

Phonétique expérimentale

Prérequis: Français N-313. Séminaire de recherche expérimentale. Initiation à l'utilisation des instruments de recherche. Etude détaillée de segments linguistiques du point de vue du timbre des voyelles, de l'articulation des consonnes et des faits prosodiques (accent, rythme, intonation). Etude expérimentale de problèmes relevant de la comparaison des systèmes phonétiques du français et de l'anglais. (demi-cours)

Français N-420 (420)

Littérature française du Moyen Âge.

Prérequis: Français N-221. Ce cours se propose de présenter à l'étudiant et de lui faire apprécier les richesses littéraires du Moyen Âge français, du Serment de Strasbourg aux poèmes de François Villon. (cours complet)

Français N-421 (421)

Littérature française de la Renaissance

Prérequis: Français N-221. Etude des conditions de la Renaissance française (temps et lieux; forces en jeu; transmissions et contacts). Trois écrivains sont approfondis en raison de leur place et de leur rôle dans l'actualité de leur siècle et de leur importance spécifique: le conteur (Rabelais), le poète (Ronsard), le moraliste (Montaigne). La mythologie et le baroque sont étudiés comme signes de deux "renaissances" différentes, voire concurrentes. (cours complet)

Français N-422 (422)

Le XVII^e siècle

Prérequis: Français N-221. Cette étude du XVII^e siècle comporte une introduction historique et l'analyse des idées héritées des siècles précédents et de celles qui apparaissent et se développent au cours du XVII^e siècle. Les différents genres littéraires sont ensuite envisagés successivement: le théâtre, le roman, la poésie lyrique, les essais. (cours complet)

Français N-423 (423)

Littérature française du XVIII^e siècle

Prérequis: Français N-221. Après une introduction détaillée sur les modifications que subit la vie littéraire après le "Siècle de Louis XIV" ce cours tend d'abord à préciser les concepts-clefs du XVIII^e siècle pour établir les supports historiques et philosophiques de la période. Les écrivains importants, de Prévost à Rousseau, sont ensuite étudiés dans l'ordre chronologique. (cours complet)

Français N-424 (424)

La littérature du XX^e siècle I

Prérequis: Français N-221. Ce cours débute par

une analyse sommaire des facteurs historiques, économiques, sociaux et artistiques qui ont caractérisé la "Belle Epoque"; distingue, pendant cette période, la littérature en vogue de celle qui préparait le renouveau littéraire de l'entre-deux-guerres; analyse particulièrement l'oeuvre de Péguy, Claudel, Proust, Gide et Apollinaire. Après un bref aperçu sur la guerre de 1914-1918 et ses conséquences, il se termine par une étude des mouvements dadaïste et surréaliste. (cours complet)

Français N-426 (426)

La littérature du XX^e siècle II

Prérequis: Français N-221. Après une brève analyse des conséquences de la première guerre mondiale sur le plan social, politique et artistique, sont étudiées par genre (roman et théâtre) les oeuvres des principaux écrivains français, de 1920 à nos jours. Sont particulièrement étudiés Bernanos, Malraux, St-Exupéry, Camus, Anouilh, Montherlant, Sartre, Giraudoux, Ionesco et Robbe-Grillet. (cours complet)

Français N-428 (428)

La littérature française de 1800 à 1857

Prérequis: Français N-221. Le "phénomène romantique" est d'abord étudié dans ses rapports avec les événements politiques (la révolution, l'Empire, la Restauration et la révolution industrielle); on abordera ensuite les caractères, les thèmes, les réussites et les limites du romantisme français dans les différents genres dans des oeuvres choisies de Chateaubriand, Lamartine, Vigny, Hugo et Musset. La dernière partie du cours sera consacrée à l'évolution du roman chez Stendhal et Balzac: recherche et invention d'un type de roman qui offre un tableau de la société; approches du réalisme. (cours complet)

Français N-429 (429)

La littérature française de 1857 à 1914

Prérequis: Français N-221. L'éclatement du romantisme; le triomphe de la philosophie positive; le réalisme; la revanche de l'esthétisme, de l'irrationnel: l'art pour l'art, le Symbolisme. La poésie: Baudelaire, le Symbolisme. Le roman: Flaubert, Zola. (cours complet)

Français N-431 (431)

Le roman québécois contemporain

Prérequis: Français N-331. Etude des romanciers les plus importants du Québec: Aquin, Bessette, Biais, Ducharme, Hébert, Langevin, Roy; leur vision du monde; leur manière de se rattacher aux courants littéraires de notre époque; leurs conceptions littéraires. (cours complet)

Français N-432 (432)

La poésie québécoise contemporaine

Prérequis: Français N-331. Etude des poètes les plus importants du Québec. Chamberland, Duguay, Hébert, Giguère, Godin, Grandbois, Lasnier, Miron, Nelligan, Saint-Denys Garneau; leurs thèmes; leur vision du monde. (cours complet)

Français N-461 (461)

Le cinéma français

Prérequis: Français N-211 ou 211 ou 011, ou équivalent, ou la permission du département. Aucun prérequis n'est exigé des étudiants qui ont fait leurs études secondaires en français. Ce cours, abondamment illustré de films ou d'extraits de films, retrace, en tout ou en partie, l'histoire du septième art dans ses manifestations les plus originales et les plus caractéristiques. (cours complet)

NOTE: Avec la permission du département, un étudiant peut suivre le cours deux fois et obtenir un second crédit à condition que le contenu du cours soit différent. L'étudiant qui prend N-461 pour la seconde fois s'inscrira en N-463.

Français N-462 (462)

Le théâtre français

Prérequis: Français N-221, ou permission du département. Ce cours étudie l'histoire du théâtre en France depuis le drame liturgique du Moyen Age jusqu'à l'anti-théâtre du XXème siècle; textes et aspects scéniques ne sont pas dissociés. (cours complet)

Français N-463 (463)

Le cinéma français

Prérequis: la permission du département. Tout étudiant s'inscrivant pour la seconde fois au cours de cinéma N-461 obtient le crédit N-463. (cours complet)

Français N-465 (465)

Théâtre québécois

Prérequis: Français N-331. Etude du théâtre québécois à partir de 1945. Analyse des pièces les plus importantes pour en dégager les lignes de force et établir leurs relations avec le contexte social du Québec contemporain. (demi-cours)

Français N-491 (451)

Etude avancée d'un sujet particulier

Prérequis: Français N-221; deux crédits en littérature française dont un au moins au niveau 400 ou permission du département. Ce cours n'est ouvert qu'aux étudiants des programmes *major* ou *honours*. Il offre l'occasion d'approfondir l'étude d'un sujet à déterminer par l'étudiant en accord avec son conseiller et/ou un professeur du

département. Chaque étudiant exécute des travaux individuels sous le contrôle du professeur spécialiste de la matière. (cours complet)

NOTE: Avec la permission du département, un étudiant peut suivre le cours deux fois et obtenir un second crédit à condition que le sujet en soit différent. L'étudiant qui prend N-491 pour la deuxième fois s'inscrira en N-492.

Français N-492 (452)

Etude avancée d'un sujet particulier

Prérequis: Français N-491 et la permission du département. Tout étudiant s'inscrivant pour la seconde fois au cours N-491 obtient le crédit N-492. (cours complet)

Cognate Course

Linguistics N-221.

Introduction to Linguistics

MATHEMATICS

NOTE: For additional courses in Mathematics please consult the Faculty of Science section of this announcement.

Mathematics N-201

Transcendental Functions

Sets. Field of real numbers. Inequalities. Functions and Graphs. Trigonometric, exponential and logarithmic functions. (half course)

NOTE: Any student who has passed (a) Mathematics 001 or the equivalent or (b) Mathematics 223 or the equivalent may not take this course for credit.

Mathematics N-202

College Algebra

Prerequisite: Mathematics N-201 or equivalent previously or concurrently. Proofs and implications. The natural numbers and the integers. Mathematical induction. Divisibility, the Euclidean Algorithm, primes, the Fundamental Theorem of Arithmetic. Sequences and progressions. Complex Numbers, polynomials, the Fundamental Theorem of Algebra. Combinatorial Mathematics, the Binomial Theorem. Systems of equations, determinants, Cramers' Rule. (half course)

NOTE: Any student who has passed (a) Mathematics 002 or the equivalent or (b) Mathematics 213 or the equivalent may not take this course for credit.

Mathematics N-203

Differential and Integral Calculus I

Prerequisite: Mathematics N-201 or equivalent.

Functional Notation. Limits and Continuity. Differentiation of Polynomials. The power, product, quotient and chain rules. Implicit differentiation. Higher derivatives. Mean Value Theorem, Rolles Theorem. Maxima and Minima. Applications: Tangents to plane curves, related rates. The differential use in finding approximations. Indefinite and definite integrals, areas and volumes. (half course)

NOTE: Any student who has passed (a) Mathematics 003 or the equivalent or (b) Mathematics 451 or the equivalent may not take this course for credit.

Mathematics N-204

Vector Analysis and Analytical Geometry

Prerequisite: Mathematics N-201 or equivalent. Inner and cross products of vectors. Algebraic and vector equations of curves in the plane and in space. Elementary study of surfaces in space. Curves and surfaces in parametric form. Polar, spherical and cylindrical coordinates. (half course)
NOTE: Any student who has passed (a) Mathematics 004 or the equivalent or (b) Mathematics 431 or the equivalent may not take this course for credit.

Mathematics N-205

Differential and Integral Calculus II

Prerequisite: Mathematics N-203. Differentiation and integration of Trigonometric functions. Derivatives of Inverse Trigonometric functions, logarithmic functions and exponential functions. Methods of integration by parts, by substitution, by separation into partial fractions. Improper integrals, L'Hopitals' Theorem. Series: Convergence tests, Maclaurin and Taylor Theorems. (half course)

NOTE: Any student who passes (a) Mathematics

005 or the equivalent or (b) Mathematics 451 or the equivalent may not take this course for credit.

Mathematics N-206

Linear Algebra for the Social Sciences

Prerequisite: Mathematics N-202. Operations on Matrices. Determinants, Cramers' Rule. Systems, rank. The inverse matrix. The Gauss Jordan Method. Mappings, Matrix Transformation. Linear Transformations. Characteristic Values, vectors, Quadratic forms. (half course)

NOTE: Any student who has passed (a) Mathematics 006 or the equivalent or (b) Mathematics 411 or N-281 or the equivalent may not take this course for credit.

Mathematics N-207

Statistics for the Social Sciences

Prerequisite: Mathematics N-201 or equivalent, or permission of Departments of Mathematics or Economics. Elementary probability, permutations and combinations, Binomial and Normal distribution. Analysis and organization of statistical data. Tests of hypotheses. Confidence limits. Introduction into Linear regression and Correlation. (half course)

NOTE: Any student who has passed (a) Mathematics 007 or the equivalent or (b) Mathematics N-241 or the equivalent may not take this course for credit.

The following courses are available only to practicing teachers.

Mathematics N-300

Mathematics N-301

Mathematics N-401

Mathematics N-404

Descriptions of the above courses are listed in the Faculty of Science section of this announcement.

PHILOSOPHY

*Associate Professor and
Chairman of the Department*
Vladimir Zeman
Professors
Stanley G. French
Paul Germain
Dallas Laskey

Associate Professors
M. Mobin Ahmad
Roger B. Angel
Assistant Professor
Christine Garside

There are two introductory courses in Philosophy. Philosophy N-210 deals systematically with some specific philosophical problems, while Philosophy N-211 considers in depth six major philosophers.

Philosophy N-210 (211)

Problems of Philosophy

A survey of selected philosophical problems in which both contemporary and traditional approaches are critically examined. Specimen

topics include: philosophical method, the existence of God, the mind-body problem, freedom and determinism, moral and political obligation. (full course)

NOTE: Students who have credit for Philosophy 011 may not take this course for credit.

Philosophy N-211 (212)

Philosophical Classics

A critical discussion of selected philosophical

classics. Readings will be chosen from Plato, Aristotle, Descartes, Hume, Kant and one recent or contemporary philosopher. (full course)
NOTE: Students who have credit for Philosophy 012 may not take this course for credit.

Philosophy N-221 (253)

Introduction to Logic and Philosophy of Science

This course is designed to provide familiarity with the basic problems of logic and to develop necessary technical skills. In the second part of the course, some important concepts in the philosophy of science will be discussed. (full course)

NOTE: Students who have credit for Philosophy 053 may not take this course for credit.

Philosophy N-231 (241)

Problems of Morals

An introduction to theoretical and applied ethics. In this course, attention will be given to the history of ethical thought, and to discussion of contemporary problems. (full course)

NOTE: Students who have credit for Philosophy 041 may not take this course for credit.

Philosophy N-271 (271)

Contemporary Philosophy

A critical study of selected 20th century philosophers. Movements and figures discussed vary from year to year. Specimen topics include: Pragmatism, Positivism, Existentialism, Linguistic Analysis: Russell, Moore, Whitehead, Dewey, Wittgenstein. (full course)

NOTE: Students who have credit for Philosophy 071 may not take this course for credit.

Philosophy N-273 (273)

Existentialism

A course designed to acquaint the student with the fundamentals of the existentialist movement as a philosophical perspective. Among philosophers considered will be Kierkegaard, Nietzsche, Heidegger, Sartre, Merleau-Ponty, Jaspers, Marcel and Camus. (full course)

NOTE: Students who have credit for Philosophy 073 may not take this course for credit.

Philosophy N-301 (422)

Greek Philosophy

A survey of the principal developments from the Presocratics (600 B.C.) to Plotinus (250 A.D.). Primary emphasis will be placed on the critical reading of selected original sources. The majority of time will be devoted to Plato and Aristotle. (full course)

Philosophy N-321 (454)

Modern Logic

An introduction to modern logic, its techniques

and applications. Coverage of sentential logic, first order predicate logic, naive set theory, relations, functions, and an introduction to set theoretical foundations of the axiomatic method. (full course)

Philosophy N-361 (261)

Philosophical Ideas in Literature

An inquiry into the philosophy of literature, with detailed study of works exemplifying philosophy in literature. Authors from East and West will be included, and analysis of alternative theories of human nature will be central to the course. (full course)

NOTE: Students who have credit for Philosophy 061 may not take this course for credit.

Philosophy N-365 (465)

Studies in Russian Philosophy

Prerequisite: One credit in Philosophy, or permission of the instructor. Study of the main topics in the development of Russian philosophy. Topics to be discussed include: Nihilism and Anarchism, Tolstoy's Philosophy of History, Dostoyevsky's idea of evil, Marxism. Lectures and seminars. (full course)

Philosophy N-368 (468)

Philosophical Psychology

A critical examination of the explanation of human behaviour and the self in the light of new developments in philosophy and psychology. Detailed studies of selected problems such as motives, intention, the concept of person, choice, reason, freedom, purpose and action. (half course)

Philosophy N-369 (413)

Contemporary Analytic Philosophy

Prerequisites: Two philosophy courses or permission of the instructor. A seminar devoted to the investigation of selected philosophical problems as they arise in the writings of such philosophers as Moore, Russell, Ayer, Carnap, Quine, Wittgenstein, Ryle, Wisdom, Austin and others. (full course)

Philosophy N-372 (431)

Contemporary Political Thought

Critical analysis of contemporary political-philosophical concepts such as tolerance, violence, séparatisme, racism and the nationalism of visible minorities. (half course)

Philosophy N-374 (432)

Philosophy of Law

Critical analysis of current and classical legal philosophy. (half course)

Philosophy N-376 (435)

Philosophy of the Social Sciences

Philosophical examination of the structure and methodology of the social sciences. Special attention to problems of functionalism, teleological explanation and the testing of social theories. (half course)

Philosophy N-378 (436)

Aesthetics

Conceptual problems relating to the production and appreciation of the fine arts. Specimen topics include the nature of the work of art and of artistic expression, artistic criticism, fiction, metaphor, appreciation and the logic of value judgments. (half course)

Philosophy N-380 (401)

Honours Seminar in Epistemology and Metaphysics

Intensive seminar and tutorial study of major contemporary issues in the theory of knowledge and metaphysics, designed particularly for honours students in any department. (full course)

Philosophy N-396 (471)

The Study of a Given Thinker

Prerequisite: One credit in Philosophy or permission of the instructor. A seminar course devoted to the study of a major philosopher. Special attention is given to the cultural background, the personal development and the leading theories of the thinker, as well as to critical evaluations of his work. (half course)

Philosophy N-401 (421)

British Empiricism

Prerequisite: One credit in Philosophy or permission of the instructor. This course studies intensively the works of at least two of Locke, Berkeley, and Hume. (full course)

Philosophy N-403 (423)

Continental Rationalism

Prerequisite: One credit in Philosophy or permission of the instructor. An intensive study of at least two of Descartes, Spinoza and Leibniz. (full course)

Philosophy N-405 (424)

Kant

Prerequisites: Two credits in Philosophy or permission of the instructor. Critical and intensive seminar study of the philosophy of Kant. (full course)

Philosophy N-407 (407)

Nineteenth Century Philosophy

Prerequisite: One credit in Philosophy or permission of the instructor. An examination of some of the main currents of post-Kantian thought in the 19th century, with special emphasis on Hegel. Specimen topics include: Schopenhauer, Marx, Kierkegaard, Nietzsche, J.S. Mill, Bradley, existentialism, phenomenology, positivism, idealism, utilitarianism. The course will not attempt to cover all of these figures and movements in any one year. (full course)

Philosophy N-409 (409)

Phenomenology

Prerequisites: Two courses in Philosophy or permission of the instructor. Origins and development of phenomenology from Brentano through the different stages of Husserl's writings. Post-Husserlian modifications by Scheler, Ingarden, Heidegger and Merleau-Ponty will be studied, as well as applications of method in the specific areas of aesthetics, ethics, religion and the social sciences. Some of the reading material will be in French and in German. (full course)

Philosophy N-421 (452)

The Philosophy of Science

An examination of problems pertaining to the structure of scientific theories and the logic of scientific reasoning. The nature of scientific explanation, the relationship between theory and experiment; the status of theories; geometry and physics; causality; inductive logic and the interpretation of scientific probability. (full course)

Philosophy N-431 (441)

Recent Ethical Theory

Prerequisite: One Philosophy credit or permission of the instructor. A critical analysis of leading contemporary ethical theories from Moore to the present. Special attention is given to the naturalistic fallacy, the reducibility of normative statements, ethical reasoning and the relation of ethics to psychology and sociology. (full course)

Philosophy N-480 (490)

Honours Seminar in Philosophy and Education

This course must be taken concurrently with Education N-480. (full course)

Philosophy N-493 (491)

Special Topics in Philosophy

Prerequisite: One credit in Philosophy or permission of the instructor. Special topics accommodating the interests of the instructor and students, elected from various areas in philosophy, e.g., value theory, philosophy of mind, philosophy of

mathematics, philosophical ideas in literature. (full course)

NOTE: With the permission of the department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Philosophy N-495. (full course)

Philosophy N-495 (492)

Special Topics in Philosophy

Prerequisites: Two credits in Philosophy or permission of the instructor. A student repeating Philosophy N-493 a second time registers for credit under Philosophy N-495. (full course)

Philosophy N-496 (472)

The Study of a Given Thinker

Prerequisites: Two credits in Philosophy or permission of the instructor. (half course)

Asian Studies N-491 (491)

Seminar in Asian Studies

Prerequisite: Permission of the Coordinator. A seminar designed for majors in Asian Studies. The seminar will vary in content depending upon the interests of the majors taking the course. (full course)

NOTE: With the permission of the Coordinator a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Asian Studies N-492.

Asian Studies N-492 (492)

Seminar in Asian Studies

Prerequisite: Permission of the Coordinator. A student repeating Asian Studies N-491 a second time registers for credit under Asian Studies N-492. (full course)

RELIGION

*Professor and Chairman
of the Department*

Charles Davis

Associate Professors

Michel Despland

Sheila McDonough

David Miller

Jean Ouellette

John Rossner

Assistant Professors

Frederick B. Bird

Robert G. Goldenberg

Religion N-213 (213)

The Religions of the World

Historical and comparative introduction to the study of religion; the religions of the Ancient World and the great living religious traditions of Africa and Asia, principally Islam, Hinduism and Buddhism. (full course)

NOTE: Only one full credit will be given from among Religion 211, 212, and N-213. Students who have credit for Religion 013 may not take this course for credit.

Religion N-222 (262)

Judaic Studies: History of the Jewish People

History of the Jewish people in ancient, medieval and modern times. Emphasis on political, social and economic factors in the formation of the various Jewish communities of the world. Consideration will be given to the historical foundations of post-Biblical Judaism, and to various philosophers of Jewish history and historiography (e.g. Graetz, Dubnow, Baron, Dinur). (full course)

NOTE: Students who have credit for Religion 062 or N-262 or 224 may not take Religion N-222 for credit.

Religion N-231 (231)

Religion, Ethics and Society

The course attempts to identify ethical issues facing individuals and societies today (e.g. economic inequality, race relations, nationalism, violence and war, sex and personal identity, affluence and anonymity, etc.). The resources of the Judaeo-Christian understanding of man will be considered and their role in the interpretation and resolution of these ethical dilemmas evaluated. (full course)

NOTE: Students who have credit for Religion 031 may not take this course for credit.

Religion N-241 (221)

Religion, Science and Philosophy

The place of religion in human culture and its relation to other modes of interpreting human existence, particularly science and philosophy. The methodology of the study of religion; the specific content of the religious affirmations of the Judaeo-Christian tradition; their modes of historical development and symbolic expression. Considerable attention is given to current religious thought. (full course)

NOTE: Students who have credit for Religion 021 may not take this course for credit.

Religion N-311 (411)

The Religions of India, Ceylon, Southeast Asia

An historical study of the major religious traditions native to the Indian sub-continent, Ceylon and Southeast Asia. Although the course will concentrate upon the development of Hindu and Buddhist religious thought and institutions, consideration will be given to the influence of Jainism, Islam, and Christianity upon Hinduism and Theravada Buddhism. The course will end with an analysis of the contemporary religious situations in India and Burma. (full course)

NOTE: Students who have credit for Religion N-411 may not take this course for credit.

Religion N-312 (412)

The Religions of China and Japan

Prerequisite: Second year standing.

An historical study of the religious traditions of pre-modern China, Tibet and Japan. After a brief introduction to the origin of Buddhism in India, the course will focus upon the development of religious thought and institutions in Mahayana Buddhism, Taoism, Confucianism and Shinto. The course will end with an analysis of the contemporary religious situations in China and Japan. (full course)

NOTE: Students who have credit for Religion N-412 may not take this course for credit.

Religion N-313 (413)

Islam

A study of the rise and development of Islamic religion and culture, with special attention to mysticism and to modernism. (full course)

NOTE: Students who have credit for Religion N-413 may not take this course for credit.

Religion N-325 (425)

The Bible and the Ancient Near East

The significance of Old Testament institutions within the context of the ancient Mediterranean world. Law, covenant, writing, historiography, the relationship between man and God, sin, sacrifice and atonements will be discussed. Readings from contemporary literature in translation (Babylonian, Egyptian, Greek, Hittite, Ugarite). (half course)

NOTE: Students who have credit for Religion N-425 may not take this course for credit.

Religion N-326 (426)

Talmudic Judaism

The concepts and institutions of classical or 'normative' Judaism, in the setting of the Hellenistic-Roman world. A conceptual approach to law, ethics, philosophy and culture of post-Biblical

Judaism. Consideration will be given to sectarianism and sectarian movements (Samaritans, Dead Sea Scrolls) and their relationship to the major Jewish 'Schools' (Pharisees, Sadducees, Essenes) and to the early Christian Church. (half course)

NOTE: Students who have credit for Religion N-426 may not take this course for credit.

Religion N-327 (427)

Medieval Jewish Thought and Institutions

Topics in the intellectual, religious, and social history of selected Jewish communities during the Middle Ages. Both internal Jewish developments and changing Jewish relations with their non-Jewish neighbours will be considered. (half course)

NOTE: Students who have credit for Religion N-427 may not take this course for credit.

Religion N-328 (428)

Modern Jewish Thought and Institutions

An investigation of the times and thought-forms of Jewish thinkers since 1789. Topics will include: the nature of revelation, the Jew in society, 'Israel' in history and philosophy, Zionism and 'the Jewish question'. Some major Jewish thinkers - e.g. Buber, Rosenzweig - and movements - the Haskalah, Zionism, Hasidism and the Reform movement in Germany - will be analyzed. (half course)

NOTE: Students who have credit for Religion N-428 may not take this course for credit.

Religion N-351 (251)

Biblical Studies I: The Hebrew Bible

An introduction to the methods and results of Biblical scholarship with regard to the history, culture and religion of Ancient Israel. Particular attention is given to the major religious affirmations and theological concepts of the Hebrew Bible which have become central in the subsequent development of Judaism. (half course)

NOTE: Students who have credit for Religion 051 or N-251 may not take this course for credit.

Religion N-352 (252)

Biblical Studies II: The New Testament

An introduction to the methods and results of contemporary New Testament scholarship; a critical survey of New Testament literature considering historical setting, history of text, religious and cultural significance. Attention is given to the central issues and concepts portrayed in the Synoptic, Johannine and Pauline writings and their importance in the subsequent development of the Western religious tradition. (half course)

NOTE: Students who have credit for Religion 052 or N-252 may not take this course for credit.

Religion N-361 (441)

Studies in the History of Christian Thought

An introduction to the classics of Christian thought from the Fathers to the modern period. Authors studied at length may vary from year to year, but in any case students will acquire a basic knowledge of Augustine, Aquinas, Luther and Calvin. (full course)

Religion N-362 (442)

Questions from the Christian Tradition

A study of some of the major religious questions and controversies in the history of the Christian West. The questions chosen will vary, but examples are: grace and free will, faith and reason, history and eschatology, church and state, contemplation and action. (full course)

Religion N-363 (463)

Religion in Canada

The historical development of the major religious traditions in Canada, their influence on the social, political and cultural areas of Canadian life, and their contemporary significance. Attention will also focus on the inter-action of Catholic, Protestant, Jewish, Indian and Eskimo groups. (full course)

NOTE: Students who have credit for Religion 261 or 061 or N-463 may not take this course for credit.

Religion N-364 (447)

The Origin of Myth, Ritual, Magic and Reason in Western Culture

A study of religion, myth, ritual, magic, science and technology in the ancient sacral-societies of Egypt and Mesopotamia. The emergence of religious and philosophical thought in classical Greece and the development of the Hebraic and early Christian forms of Monotheism. Toward the end of the course these themes will be related to subsequent developments in Western culture. (full course)

Religion N-432 (432)

Social Ethics

A systematic investigation of the dialectical relationship between the individual and society and of the religious dimensions of political activity in the modern world. The course will study the forces of social control as well as the nature of the individual's freedom and responsibility. (full course)

Religion N-435 (435)

Studies in Religious Ethics

The course will examine the ethical thinking of one or more religious traditions and the relationship of the ethical thinking with the theology and the sociocultural context of the religious tradition. The

choice of the religious tradition or traditions to be studied shall depend upon the interest and qualifications of the instructor, and may vary from year to year. (full course)

Religion N-443 (443)

Contemporary Philosophy of Religion

A study of philosophical thought on religion since the Enlightenment with special attention to the background of current problems in the philosophy of religion and to the relation between religious and atheistic thought. (full course)

Religion N-465 (465)

Classical and Contemporary Images of Man

A seminar on the religious and cultural significance of some of the contemporary images of man reflected in: recent writings in philosophy, psychology, political and social theory and communications; developments in the arts and popular culture; the newer religious movements, including Western adaptations of Oriental religious cults; parapsychological research, psychic phenomena, the world of the occult, and science-fiction literature. The ideas of selected authors and movements will be examined against the background of the classical Greek, ancient Hebrew, and early Christian conceptions of man and the major religious themes and motifs of intellectual traditions of the West. (full course)

Religion N-491 (448)

Special Seminar I

Prerequisite: Permission of the Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (full course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Religion N-492.

Religion N-492 (449)

Special Seminar II

Prerequisite: Permission of the Department. A student repeating Religion N-491 a second time registers for credit under Religion N-492. (full course)

Religion N-493 (493)

Religious Institutions

Prerequisite: Permission of the Department. Seminar on a particular period or institution in the history of religion. (half course)

NOTE: With the permission of the Department,

a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Religion N-494.

Religion N-494 (494)

Religious Institutions

Prerequisite: Permission of the Department. A student repeating Religion N-493 a second time registers for credit under Religion N-494. (half course)

Religion N-495 (495)

Religious Thinkers

Prerequisite: Permission of the Department. Seminar on a particular thinker or school of thought in the history of religion. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Religion N-496.

Religion N-496 (496)

Religious Thinkers

Prerequisite: Permission of the Department. A student repeating Religion N-495 a second time registers for credit under Religion N-496. (half course)

Religion N-497 (497)

Jewish Thought and Institutions

Prerequisite: Permission of the Department. Seminar on a particular school of thought or movement in the history of Judaism. (half course)

Religion N-498 (498)

Jewish Thought and Institutions

Prerequisite: Permission of the Department. A student repeating Religion N-497 a second time registers for credit under Religion N-498. (half course)

Cognate Course

Archaeology N-211

Introduction to Archaeology I

Social Sciences Division

Assistant Professor of Social Science

Jack Goldner

URBAN STUDIES

Urban Studies N-491 (491)

Honours Seminar

Prerequisite: Third year honours students in Urban Studies. Each student must prepare and submit an appropriate research paper. (full course)

APPLIED SOCIAL SCIENCE

*Professor and Chairman
of the Department*

Hedley G. Dimock
Professor

Richard D. McDonald

Assistant Professors

Robert J. Nagge

J. Alexander Sproule

Applied Social Science N-212 (212)

Introduction to Applied Social Science

This course is an orientation to the field of applied social science with a specific focus on relating to and working with other people. It includes a consideration of personal identity, inter-personal relations and concepts of helping relationships. (full course)

Applied Social Science N-351 (251)

Understanding Group Behaviour

This is a laboratory course which includes participating in a group and analyzing such common group dynamics as leadership, communication, decision-making, member roles and sensitivity to others. (half course)

Applied Social Science N-400 (400)

Introduction to Social Intervention

Prerequisite: Permission from the Department. Introduction to the principles and practice of

social intervention. Approaches to social problem identification and analysis. The role of the social change agent. Elements of working with individuals, groups, and communities. Laboratory periods will permit the application of course content to practice. (full course)

Applied Social Science N-413 (413)

Adolescent Behaviour in Urban Areas

Prerequisite: Applied Social Science N-212. A survey of adolescent values, family and group relations, social mobility, friendship patterns, educational and vocational adjustment with a focus on understanding social behaviour in urban communities. Attention will also be given to programs attempting to enhance adolescent development and reduce social problems. (full course)

Applied Social Science N-421 (421)

Administration of Community Serving Agencies

The development of the administrative process

and the principles and methods of administration and organization of community agencies. Specific areas of administration analyzed include personnel, financing, maintenance, public relations, personal efficiency and adequate recording processes. (half course)

NOTE: Students who have credit for Applied Social Science 221 may not take this course for credit.

Applied Social Science N-431 (431)

Group Development and Supervision

Prerequisite: Applied Social Science N-212. Orientation to systematic group development in community-serving organizations. Development of understanding and skill in using group procedures to facilitate communication and decision-making in small groups, classes and committees. Focus on helping others improve their functioning with groups through supervision and training. Each student will study the development of an agency group throughout the year. (full course)

Applied Social Science N-441 (441)

Community Development

Prerequisite: Applied Social Science N-212. Orientation to systematic community problem-solving dealing with communications, assessment of needs, decision-making, and inter-group relations, drawing on the contributions of the social sciences. (half course)

Applied Social Science N-451 (451)

Principles and Practices of Guidance

Prerequisite: Applied Social Science N-212. Principles and methods of counselling and guidance with particular reference to their application in the setting of the community-serving organizations. Organization and administration of a guidance service including measurement and appraisal, techniques of counselling, occupational and educational information, and referral, will be considered. (half course)

Applied Social Science N-452 (452)

Introduction to Counselling

Prerequisites: Applied Social Science N-212, N-451. A survey of typical problems; information, techniques, principles, policies and points of view useful to professional staff in community-serving organizations; focus on educational, vocational and relationship problems, and the use of counselling techniques in staff relations and supervision. (half course)

Applied Social Science N-461 (461)

Social Welfare and the Social Welfare Services

Prerequisite: Second-year standing, or permission of the Department. A general course concerned

with social welfare problems in modern society: some analysis of these problems in relation to economic and cultural patterns. A description of the functional settings in which social welfare services are practiced. A consideration of the methods used in social welfare, and some consideration of the connective links between social welfare services and religion, law, medicine, nursing, teaching and other professions. (full course)

NOTE: Students who have credit for Applied Social Science 462 may not take this course for credit.

Applied Social Science N-471 (471)

Special Projects Seminar

Prerequisite: Second-year major in Applied Social Science and permission of the Department. A seminar course for field projects, surveys and research studies undertaken by each student. (full course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Applied Social Science N-472.

Applied Social Science N-472 (472)

Special Projects Seminar

Prerequisite: Second-year major in Applied Social Science and permission of the Department. A student repeating Applied Social Science N-471 for a second time registers for credit under Applied Social Science N-472. (full course)

Applied Social Science N-481 (481)

Special Seminar in Applied Social Science

Prerequisites: Psychology N-211, Sociology N-210 and permission of the Department. The subject for the seminar will vary from year to year reflecting recent developments in social change, new approaches in the behavioural sciences, or the special interests of the instructor. (full course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Applied Social Science N-482.

Applied Social Science N-482 (482)

Special Seminar in Applied Social Science

Prerequisite: Permission from the Department. A student repeating Applied Social Science N-481 a second time registers for credit under N-482. (full course)

Applied Social Science N-485 (485)

Special Seminar in Applied Social Science

Prerequisite: Permission from the Department.

The subject for the seminar will vary from year to year reflecting recent developments in social change, new approaches in the behavioral sciences, or the special interests of students or the instructor. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the sec-

ond time. He will register the second time under Applied Social Science N-486.

Applied Social Science N-486 (486)

Special Seminar in Applied Social Science

Prerequisite: Permission from the Department. A student repeating Applied Social Science N-485 for a second time registers for credit under Applied Social Science N-486. (half course)

ECONOMICS

*Professor and Chairman
of the Department*

Arthur Lerner

Professors

Muriel Armstrong

Morido Inagaki

John W. O'Brien

Shreekanth A. Palekar

Associate Professors

A. Anastasopoulos

George D. Davidovic

André A. Martens

Balbir S. Sahni

Abraham Tarasofsky

Visiting Associate Professor

Paul Hohenberg

Assistant Professors

Vittorio Corbo

Peter L. Miles

Robert N. Rand

Barry D. Rosenfeld

Morton Stelcner

Visiting Assistant Professor

Franklin F. Mendels

Commerce students interested in general courses in Economics should take in addition to Economics N-209 and N-210, — Economics N-311, N-316, N-422, N-428, N-429 or N-434.

Economics N-209 (209)

Introduction to Microeconomics

An introduction to the analysis of price and wage determination in industry. The differences between competition and monopoly and their implications for prices and economic efficiency are analyzed. The analysis is used to evaluate, among other areas, government policies concerning the regulation of business, including environmental pollution and the distribution of income in a Canadian context. (half course)

NOTE: Students who have credit for Economics 011, N-211, 211, N-212 or 013 or 009 or 109 may not take this course for credit.

Economics N-210 (210)

Introduction to Macroeconomics

This course is an introduction to the analysis of aggregate economic activity and the operation of the banking system. The theoretical analysis is applied to a discussion of such problems as unemployment, inflation and the balance of international payments and to a consideration of what the government can do to solve the problems. (half course)

NOTE: Students who have credit for Economics

011, N-211, 211, N-212 or 013 or 010 or 110 may not take this course for credit.

Economics N-212 (213)

Introductory Economics

Prerequisite: Mathematics 001 and 002 or equivalent. This course will cover the same material as Economics N-211, N-209 and N-210. The mathematical training required will allow the material to be covered somewhat more rigorously. (full course)

NOTE: Students who have credit for Economics N-211 or 013 or 112 may not take this course for credit.

Economics N-270 (281)

Mathematics for Economists I

Prerequisite: Economics N-211, or N-209 and N-210 or N-212. In this course, the basic topics of differential and integral calculus will be treated, together with some economic applications. The aim of this course is to equip the student with the elementary tools necessary for understanding the economic literature. (half course)

NOTE: Students who have credit for *Mathematics* N-203, N-205 or 005, or Economics 081 may not take this course for credit.

Economics N-271 (282)

Mathematics for Economists II

Prerequisite: Economics N-211, or N-209 and N-210 or N-212; N-270 or Mathematics N-203 and N-205, or equivalent. Constrained maximization and minimization; introduction to vector spaces; matrices and determinants; linear programming. (half course)

NOTE: Students who have credit for Mathematics 415, 450, 451 or Economics 082 may not take this course for credit.

Economics N-274 (218)

The Use of Economic Data

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. Concepts of economic accounting and related measurement techniques, with special reference to the procedures used in Canada and in international economic institutions like the U.N., I.M.F., and O.E.C.D. The topics include: national accounts, input-output tables, flow-of-funds accounts, national balance sheets, international and interregional comparison of economic data, choice of index. (half course)

Economics N-311 (411)

Intermediate Microeconomic Theory

Prerequisite: Economics N-211, or N-209 or N-212. This course is designed for the student honouring or majoring in Economics. It is a basic course in microeconomic theory; market price determination, theory of consumer demand, theory of the firm, and distribution theory. (full course)

NOTE: Students who have credit for Economics 091 or 413 may not take this course for credit.

Economics N-312 (413)

Microeconomic Theory (Mathematical Approach)

Prerequisite: Economics N-211, or N-209 or N-212, and N-270, N-271 or permission of the Department. This is a course in intermediate microeconomic analysis. It covers the principal mathematical tools required to deal with constrained maximization problems. These tools are used to cover the same topics as in Economics N-311. (full course)

NOTE: Students who have credit for Economics N-311 may not take this course for credit.

Economics N-316 (451)

Money and Banking

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A general study of the modern theory of income determination and of the principles of commercial and central banking. In particular, the course will deal with the nature and functions of money, national income accounting; some aspects of modern monetary theory, monetary and fiscal policy, commercial and central banking as an

instrument of monetary policy, the structure and mechanism of the modern money market, foreign exchange and the problem of inflation. Special emphasis will be placed on monetary and banking problems in Canada. (full course)

NOTE: Students who have credit for Economics 051 or N-318 may not take this course for credit.

Economics N-318 (452)

Intermediate Macroeconomic Theory

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A basic course in macroeconomic and monetary theory; with particular reference to the role of monetary institutions and monetary policies. (full course)

NOTE: This course is intended primarily for students honouring and majoring in Economics. Others should take Economics N-316.

Students who have credit for Economics N-316 may not take this course for credit.

Economics N-330 (221)

Introduction to Economic History

This course is built about the central theme of the nature of economic evolution including industrialization. The concept of change in economic organization and institutions will be discussed not only in terms of its effect on the economic life of society, but also with respect to its influence on social, political, and cultural conditions. In keeping with a global view, attention will be given to the non-western world, with emphasis on the nature of contemporary underdevelopment. (full course)

NOTE: Students who have credit for Economics 021 or 130 may not take this course for credit.

Economics N-375 (375)

Introduction to Statistics for Economists

Prerequisite: Mathematics N-207.

The course is an introduction to the application of statistical techniques to economic data. Topics discussed will include, among others, measures of central tendency, index numbers, time series, statistical inference, analysis of variance, correlation and regression. (half course)

NOTE: Students who have credit for Economics N-275 or 075 or 275 may not take this course for credit.

NOTE: Only one credit will be given from among Economics N-375, Geography N-362 and N-363, Mathematics N-241, Quantitative Methods N-243 and N-244, Statistics 242, Sociology N-241, Psychology N-241 and Psychology N-242.

Economics N-404 (431)

Economic Policy I

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A study of government policies of

resource allocation with emphasis on Canadian policy problems. Topics will include government regulation of business, agriculture policy, transportation policy, and tariff policy. (half course)

Economics N-405 (432)

Economic Policy II

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A study of trade, government stabilization, growth, and welfare policies with emphasis on Canadian policy problems. Topics will include monetary and fiscal policies, policies to encourage growth, and social security policies. (half course)

NOTE: Students who have credit for Economics 431 before 1969-70 may not take this course for credit.

Economics N-411 (412)

Advanced Microeconomic Theory

Prerequisite: Economics N-311, or N-312, or permission of the Department. An extension of microeconomic theory with emphasis on some of the contemporary literature. (full course)

Economics N-412 (484)

Mathematical Economics I

Prerequisites: Economics N-311; N-316 or N-318, Economics N-270, N-271, or Mathematics N-203, N-205, N-206; or permission of the Department. Demand theory: classical theory and an introduction to the contemporary theory of demand, revealed preference, von Neuman utility functions. Production theory: linear production functions, CES production functions, technological change, input-output analysis, introduction to linear programming. (half course)

Economics N-413 (485)

Mathematical Economics II

Prerequisite: Economics N-412, or permission of the Department. General equilibrium models, existence and stability; capital accumulation over time. (half course)

Economics N-415 (421)

History of Economic Thought

Prerequisites: Economics N-311 or N-312; N-316 or N-318. A brief study of the development of economic thought, with special emphasis on the Classical and Neo-classical period, as an introduction to modern economic theories. Designed primarily for honours students. (full course)

Economics N-418 (453)

Advanced Macroeconomic Theory

Prerequisites: Economics N-211, or N-209 and N-210 or N-212; N-316 or N-318. An extension of

Economics N-318 with emphasis on some of the contemporary literature. (full course)

Economics N-420 (454)

Public Finance and Fiscal Policy

Prerequisite: Economics N-311 or N-312 or N-316 or N-318 previously or concurrently. The general objectives of this course are to provide the student with a basic theoretical framework within which to examine the economic role of government and to examine a number of current policy issues in public finance (such as proposals for tax reform, pollution problems and guaranteed annual income schemes). Emphasis is placed on studying the role of government in promoting efficient resource allocation and "equitable" income distribution. (full course)

Economics N-422 (461)

International Economic Relations

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. Postwar international institutions: IMF, GATT, etc. The international monetary system, its problems and proposed reforms. Currency areas, exchange control systems and clearing systems. European integration and the common market. (half course)

Economics N-423 (462)

Theory of International Trade

Prerequisites: Economics N-211, or N-209 and N-210, or N-212; N-311 or N-312. A study of the theories of comparative costs and reciprocal demand and their development; the theory of factor reward equalization; the theory of foreign exchanges; the theory of tariffs, customs union theory, and related topics in the theory of international trade. Emphasis will be placed upon the theoretical rather than the institutional analysis of international economics, though the theories will be illustrated by consideration of current problems in international economic affairs. (half course)

Economics N-426 (426)

Urban Economics

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. This course will focus on the basic issues of explaining the process of economic growth and stagnation, the problems of the urban public economy, and special urban problems such as pollution, congestion, poverty, and housing and urban renewal. (half course)

Economics N-427 (427)

Regional Economics

Prerequisites: Economics N-311 or N-312; N-316 or N-318 previously or concurrently or permission of the Department. The primary emphasis is placed

upon techniques and methods of regional economic analysis. Among the topics included are: conceptual problems in regional accounting; regional cycles; inter-regional trade theory; input-output analysis in a regional context; measures and analysis of industrial location; and public expenditure analysis in an urban-regional setting. (half course)

Economics N-428 (472)

Labour Economics

Prerequisite: Economics N-311 or N-312 or N-316 or N-318 previously or concurrently. A study of the theoretical aspects of the labour market; the historical theories of wages; the derivation of demand and supply curves of labour; the theory of wage differentials; labour force measurement; the relation between wage changes and employment; wages and prices; labour productivity and labour's share of national income; types and theories of unemployment; problems of full employment; public policy on wages. These topics will be illustrated by relevant statistical and other material relating to Canada. (half course)

NOTE: Students who have credit for Economics 271 or 471 before 1969-70 may not take this course for credit.

Economics N-429 (471)

Industrial Relations

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. A study of the general and practical problems that arise in the labour field, such as collective bargaining, the legal framework for the settlement of industrial disputes, the weapons of industrial conflict; the labour movement; contemporary labour issues such as automation, cost-push inflation and structural unemployment. These topics will be illustrated by facts relating to industrial relations in Canada. (half course)

Economics N-430 (420)

Economic History of Modern Europe

Prerequisite: Economics N-211, or N-209 and N-210, or N-212, or N-330. The course will explore the causes and consequences of the British Industrial Revolution and its diffusion to the Continent in terms of differential national growth patterns and social problems associated with economic change. It will include an analysis of free trade, economic nationalism, the new imperialism, the importance of the crisis of 1929 in terms of economic organization, thought and policy, and post World War II reorganization, in terms of planning the welfare state, and economic integration. (full course)

Economics N-434 (424)

Economic History of Canada

Prerequisite: Economics N-211, or N-209 and N-210, or N-212, or N-330. This course is designed to introduce the student to Canadian economic development from the early period of settlement to the present day. Emphasis will be placed on the economic history of Canada since Confederation. (full course)

Economics N-438 (428)

Economic History and Development of the United States

Prerequisite: Economics N-211, or N-209 and N-210, or N-212, or N-330. This course will deal with the economics of the colonial period, the economic causes of the American Revolution, the role of the North Atlantic Triangle (the U.S., Great Britain and Canada). American economic development prior to and after the Civil War until and including the Great Depression. Following the New Deal period emphasis will be placed on the war economy and postwar economic development. The postwar U.S. international trade and aid policy will also be covered. (full course)

Economics N-440 (422)

Economic Development

Prerequisites: Economics N-211, or N-209 and N-210, or N-212; N-311 or N-312. A study of the general principles and problems of economic development. There will be some empirical analysis of problems of capital formation, fiscal policies, population growth, foreign investment, and supply of entrepreneurship in selected countries. The theoretical analysis will examine critically the content and applicability of the various growth models including the classical, Marxist, Schumpeterian, Harrod-Domar, Rostow models of economic growth and techniques of development planning in terms of investment criteria and priorities. (full course)

NOTE: Students who have credit for Economics N-442 or N-443 may not take this course for credit.

Economics N-442 (488)

Quantitative Development Economics I

Prerequisites: Economics N-211, or N-209 and N-210, or N-212; N-271 or equivalent; N-311 or N-312. Methods of national accounting and input-output analysis for underdeveloped countries. Methods of comparing standards of living. Patterns of economic development. Appraisal of models constructed on the premises of modern theories of economic development. (half course)

NOTE: Students who have credit for Economics N-440 may not take this course for credit.

Economics N-443 (489)

Quantitative Development Economics II

Prerequisite: Economics N-442. The model of economic policy. Planning in stages. The model of linear activity analysis and efficient decentralization of economic decisions. Planning of efficient accumulation of capital. Individual project evaluation. Foreign aid and debt service models. Projection of manpower requirements. Evaluation of empirical applications of optimum planning to underdeveloped economies. (half course)

NOTE: Students who have credit for Economics N-440 may not take this course for credit.

Economics N-446 (423)

The Economic Development of Quebec

Prerequisite: Economics N-211, or N-209 and N-210, or N-212. This course will review past and present trends in the economic development of Quebec, though emphasis will be placed on the economic growth of Quebec since the Second World War. Attention will be given to the regional aspects of its growth problems. (half course)

Economics N-448 (425)

Studies in Asian Economic Growth

Prerequisite: Economics N-311 or N-312 or N-316 or N-318 or permission of the Department. This course is designed to deal primarily with the economic growth of South East Asia and includes comparative studies of Japan and India, etc. Policy problems related to the acceleration of economic development of the area will be emphasized. (half course)

Economics N-449 (429)

Studies in Latin American Economic Growth

Prerequisite: Economics N-311 or N-312 or N-316 or N-318 or permission of the Department. This course deals with the socio-political background of the area since the establishment of independence in the respective nations. Emphasis on the role of ideologies, governments in the process of economic growth. Entrepreneurship, capital formation, agriculture, interregionalism, and external economic aid. (half course)

Economics N-460 (445)

Contemporary Economic Systems

Prerequisite: Economics N-211, or N-209 and N-210, or N-212 or N-330. A comparative study of contemporary economic systems. While mainly concerned with the institutional features of contemporary free market economies, the course will also deal with their counterpart, the systems of a command economy and a Socialist market economy. Of primary interest will be the institutions, mechanisms and policies which govern allocation, efficiency, growth and distribution of

income, with emphasis on the historical background of the institutions and the social, political and ideological influences which continue to shape them. (full course)

Economics N-464 (444)

Marxian Economics

Prerequisite: Economics N-211, or N-209 and N-210, or N-212, or N-330. A general survey of Marxian theory; Marx's role and influence; his predecessors and followers. The topics that will be discussed include historical and dialectical materialism, the role of the proletariat in Marxian teaching, Marx and the Socialist International, the evolution of Marxian thought, Marx and the labour movement, the labour theory of value, the theory of economic development and the breakdown of capitalism. (half course)

Economics N-465 (443)

Soviet Economics

Prerequisite: Economics N-211, or N-209 and N-210, or N-212, or N-330. A study of the Soviet economic system and its evolution, its influence on other communist countries, how it differs from western and developing countries. Attention will be given to Lenin's role in the early stages of the Russian Revolution, the period of War-Communism, N.E.P. (New Economic Policy), Stalinist economic planning, the importance of heavy industry, the agricultural sector and the consumer, post-Stalinist industry, the agricultural sector and the consumer, post-Stalinist trends including the economic reforms inspired by Liberman. (half course)

Economics N-468 (447)

Theory and Practice of Cooperation

Prerequisite: Economics N-211, or N-209 and N-210, or N-212, or N-330. This course will deal with the effect of cooperatives on economic and social development with emphasis on Quebec and Canada. Among the topics discussed are the origins and development of the cooperative economy, differences between cooperative, capitalist and communist economic systems; economic, social, educational and moral transformations taking place under cooperative influence, and the role of cooperation on the international political scene. (full course)

Economics N-470 (480)

Mathematics for Economists III

Prerequisite: Economics N-271 or permission of the Department. Quadratic forms, introduction to differential equations and difference equations. (half course)

Economics N-471 (481)

Mathematics for Economists IV

Prerequisite: Economics N-470 or permission

of the Department. Differential and difference equations, introduction to calculus of variations. (half course)

Economics N-476 (482)

Econometrics I

Prerequisites: Economics N-270 and N-271; Quantitative Methods N-243 and N-244 or Mathematics N-241 or equivalent. A study of the econometric problems generally associated with single equation multiple regression analysis. A knowledge of basic matrix algebra and mathematical statistics is required. (half course)

Economics N-477 (483)

Econometrics II

Prerequisite: Economics N-476 or equivalent. In the first part of this course there will be a brief discussion of the estimation problems associated with simultaneous equation econometric problems. The second will be devoted to the analysis of certain specific economic models proposed in the literature. (half course)

Economics N-490 (491)

Advanced Study in a Special Subject

Prerequisite: Permission of the Department. This course is designed primarily for honours and major students. Its purpose is to provide an opportunity for advanced students to intensify their study beyond the traditional areas of specialization already represented by the curriculum. The selected subject will vary with the special interest of the instructor offering the course in any given year. (full course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Economics N-491.

Economics N-491 (492)

Advanced Study in a Special Subject

Prerequisite: Permission of the Department. A student repeating Economics N-490 a second time registers for credit under Economics N-491. (full course)

Economics N-493 (493)

Advanced Study in a Special Subject

Prerequisite: Permission of the Department. This course is designed primarily for honours and major students. Its purpose is to provide an opportunity for students to intensify their study beyond the traditional areas of specialization already represented in the curriculum. The selected subject will vary with the special interest of the respective instructor offering the course. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Economics N-494.

Economics N-494 (494)

Advanced Study in a Special Subject

Prerequisite: Permission of the Department. A student repeating Economics N-493 a second time registers for credit under Economics N-494. (half course)

EDUCATION

*Associate Professor and
Chairman of the Department*
Jitendra Bhatnagar
Professor
John L. Harrison
Associate Professors
Mark Braham
Harold Entwistle

Visiting Associate Professor
Thomas S. Allan
Assistant Professors
Gary Boyd
Gary O. Coldevin
Martha Crampton
Frances Friedman
George Huntley
P. David Mitchell
*Assistant Professor of Education
and Psychology*
Donna White
Lecturer
Ellen Jacobs

Education N-201 (212)

The Nature and Function of Teaching

An introduction to the purpose, theories and methods of teaching. (full course)

Education N-202 (202)

Introduction to Early Childhood Education

Prerequisite: Permission of the Department. This course provides an introduction to Early Childhood

Education through an examination of the historical background and the organization, objectives and curriculum planning for nursery schools, kindergartens, and day care centers. (full course)

Education N-215 (215)

Developmental and Educational Psychology of Early Childhood

Prerequisite: Permission of the Department. This course will study the affective and cognitive development of the child from birth to six years of age with particular reference to familial and other social psychological aspects and their implication for teaching and learning. (full course)

Education N-261 (261)

Subject and Methods of Early Childhood Education

Prerequisite: Permission of the Department. Students in this course will be concerned with the following topics: art, music and dance, drama, language, number, and environmental studies. They will specialize in three topics. (full course)

Education N-415 (415)

Education of the Slow-Learning Child

Prerequisite: Psychology N-211. This course will describe the cognitive, social and emotional problems of slow-learning children and discuss educational techniques for coping with these problems. (half course)

Education N-416 (455)

Education of the Gifted

Prerequisites: Psychology N-211; Education N-215. This course will discuss the special educational problems of gifted children; it will also assess the effectiveness of the techniques usually employed to deal with these problems. (half course)

Education N-417 (442)

Education of the Culturally Disadvantaged

Prerequisite: Sociology N-210. This course will describe the cognitive, social and emotional problems of culturally disadvantaged children and discuss educational techniques for coping with their problems. (half course)

Education N-421 (421)

Sociology of Education

Prerequisite: Sociology N-210. The social organization of education activities. The role of educational institutions in socialization, social control and technology. Education and stratification, mobility and social change. (full course)

NOTE: Students taking this course for credit cannot register for Sociology N-451 for credit.

Education N-430 (411)

Philosophy of Education

Prerequisite: Philosophy N-210. The application of philosophical method with particular reference

to the aims, methods, discipline and concepts of education is considered in this course. Students will be expected to become familiar with the principal authors and with the current periodical literature in the field of philosophy of education. (full course)

Education N-441 (431)

History of Educational Ideas

Prerequisite: One '200' level credit in History. In this course students will study major educational ideas and idea systems. These will be reviewed in philosophical, religious, political and social perspective. (full course)

NOTE: Students who have credit for Education 211 may not take this course for credit.

Education N-442 (422)

Education in Canada

Prerequisite: A course in Canadian History. It is advisable that students have a reading knowledge of French. This course will study the history of Canadian education, and, more particularly, the history of education in Quebec. (half course)

Education N-451 (451)

Comparative and International Education

Prerequisite: Education N-201. The study of educational systems at home and abroad with particular emphasis on educational practice in the United States, the United Kingdom, Western Europe, the Soviet Union, China and the Third World. (full course)

Education N-453 (453)

Education in Quebec

Students in this course will study the contemporary movements in and structures of Quebec education. (half course)

Education N-461 (461)

Early Childhood Education

Prerequisite: Permission of the Department. This course will provide a study of essential teaching areas for kindergarten and nursery schools. The topics will include language development, reading, writing, children's literature and drama, mathematics, science, health, safety and social studies in relation to the psychological and social development of early childhood. (full course)

Education N-465 (459)

Adult Education

Prerequisite: One course in Education. This course will study the history, philosophy, organization, and special problems of formal and informal adult education, with particular reference to current developments in Canada. (half course)

Education N-480 (490)

Honours Essay in Education and Philosophy

This course must be taken concurrently with Philosophy N-480. (full course)

Education N-490 (412)

Seminar in Epistemology and Education

Prerequisite: Education N-430 or permission of the instructor. Theories of knowledge are considered in this course, with special attention being given to the bearing of such topics as perception, evidence, truth, knowing and belief on educational thought and practice. Students will be expected to become familiar with recent periodical and other literature in the field. (half course)

Education N-491 (413)

Seminar in Ethics and Education

Prerequisite: Education N-430 or permission of the instructor. Students in this course will study the principles and methods of moral justification in education. They will be referred to the writing of main authors and recent periodical literature. (half course)

Education N-492 (492)

Seminar in Aesthetics and Education

Prerequisite: Education N-430 or permission of the instructor. The nature of aesthetic value and experience, and theories of art and beauty will be examined. The development of the emotions and imagination and their functions in aesthetic awareness are central concerns of this course. Students will be expected to become familiar with the relevant literature in the field. (half course)

Education N-493 (493)

Seminar in Philosophy and Education

Prerequisite: Education N-430 or permission of the instructor. This is an advanced seminar in philosophical analysis and theory in which students will present papers on, and conduct discussions about, educational concepts, aims and practices. Students will be expected to become conversant with the periodical and other literature in the areas under discussion. (half course)

Education N-495 (495)

Selected Topics in Education

Prerequisite: Education N-201, or one year's teaching experience, or permission of the Department. Special topics accommodating the interests of the instructor and students. The topics studied may differ from year to year. (full course)

NOTE: With permission of the Department a student may take this course twice for credit, provided that a different subject is dealt with the

second time. He will register the second time for credit under Education N-496.

Education N-496 (496)

Selected Topics in Education

Prerequisite: Permission of the Department.

A student repeating Education N-495 for a second time registers for credit under Education N-496. (full course)

Education N-497 (497)

Selected Topics in Education

Prerequisite: Education N-201, or one year's teaching experience, or permission of the Department. Special topics accommodating the interests of the instructor and students. The topics studied may differ from year to year. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time for credit under Education N-498.

Education N-498 (498)

Selected Topics in Education

Prerequisite: Permission of the Department. A student repeating Education N-497 for a second time registers for credit under Education N-498. (half course)

Cognate course

Psychology N-482

Psychology of Human Learning in the Classroom

GEOGRAPHY

*Professor and Chairman
of the Department*
D.A. Fraser
Professor
Bogdan Zaborski
Associate Professors
Ronald W. Bryant

Harry A. Clinch
Michael Marsden
Brian Slack
Assistant Professors
David B. Frost
James W. Young

Geography N-211 (211)

Introduction to Human Geography

A study of the evolution of the earth's populated area and the gradual enlargement of geographical horizons. The emphasis will be on cultural distributions, landscape and settlement, and the geography of economic, social, and political activities. (full course)

NOTE: Students who have credit for Geography 011 may not take this course for credit.

Geography N-260 (260)

Introduction to Cartography I

A study of the map as a tool of the geographer. Assignments of a practical nature will emphasize the history, design, drawing and use of maps. Additionally, the course will focus on the use and application of qualitative and quantitative materials and methods as they relate to modern cartography. (half course)

NOTE: Students who have credit for 060 or 061; or N-261 or 261 before 1973-74 may not take this course for credit.

Geography N-261 (261)

Introduction to Cartography II

Prerequisite: Geography N-260 or permission of the Department. A study of the map and its use in portraying different types of information in various ways. Additionally, the course will focus on the use of air photos and their interpretation as an aid to the cartographer. Design balance and drawing skills are further developed. (half course)

NOTE: Students who have credit for Geography 061 may not take this course for credit.

Geography N-271 (231)

Introduction to Physical Geography

An introduction to the earth sciences as they relate to the environment of man, with special emphasis upon weather, climate and the evolution of landscape. (full course)

NOTE: Students who have credit for Geography 232 or 031 may not take this course for credit.

Geography N-316 (416)

Human Geography

Prerequisite: Geography N-211, or enrolment in

an honours or department major program in a Social Science. A study of the historical development and methods of research of Human Geography. The course will focus on the following topics: distribution of population, geography of health, distribution of race, language and religion, settlement geography, and the cultural landscape. (full course)

Geography N-321 (446)

Early Man

Prerequisite: Geography N-211, or enrolment in an honours or department major program in a Social Science. An examination of the scientific evidence for the unwritten part of man's evolutionary history. The course will study both food-gathering man and food-producing man. The roles of the biological and cultural components will be considered as well as the limiting factor of environment. (full course)

NOTE: This course may be counted as a credit in either Humanities of Science or Geography.

Geography N-322 (421)

Historical Geography of the United States

Prerequisite: Geography N-211 or enrolment in an honours or departmental major program in a Social Science. A study of the patterns of colonization and settlement. Some emphasis will be placed on the evaluation of various approaches used in the writing of historical geography. (full course)

NOTE: Students who have credit for Geography N-421 may not take this course for credit.

Geography N-331 (431)

Urban Geography

Prerequisite: Geography N-211, or enrolment in an honours or department major program in a Social Science or the Faculty of Commerce. A study of the prehistoric town, the Greek and Roman town, towns in the Middle Ages, the trading city, the pioneer town and the modern metropolis. The distribution of such towns, their development, growth and internal pattern of organization will be looked at from an historical and geographical point of view. Problems of conurbations and large metropolitan cities in the present

age will be discussed and evaluated. Special emphasis will be given to Canadian cities, to their site, function, organization, growth and development as well as to urban problems relating to zoning, transportation, urban renewal, etc. (full course)

Geography N-341 (441)

Geography of Canada, Past and Present

Prerequisite: Geography N-211, or enrolment in an honours or department major program in a Social Science or the Faculty of Commerce.

A study of Canada, past and present, based on the various natural regions into which the country is divided. In the first half of the course an historic-geographical approach will be taken to bring to the student's attention the main trends in Canadian cultural and historical development from aboriginal times to the present. The changing nature of man-land relationships at different periods of time, and under different forms of occupation, will receive particular attention. In the second half of the course the present day pattern of human occupation on a regional and national basis will be analyzed. Special studies on regional problems and on particular economic, social, or political lines of general interest will be included in the course. All students will be expected to complete a term paper for credit. (full course)

Geography N-343 (443)

Geography of the U.S.S.R.

Prerequisite: Geography N-211, or enrolment in an honours or department major program in a Social Science. A study of the interaction between physical zonal patterns and the distribution of population and its activities. Consideration will be given to the evolution of Slavic, Turkic and other ethnic groups, and to the territorial expansion of Russia, and the U.S.S.R. (full course)

Geography N-355 (455)

Spatial Organization

Prerequisite: Geography N-211 or enrolment in an honours or major program in the Department of Economics or in the Faculty of Science. A study of how man organizes spatial activities with the emphasis on the concepts of spatial interaction, location of activities, diffusion and individual decision. (full course)

Geography N-357 (457)

Resource Utilization and Conservation

Prerequisite: Geography N-211, or enrolment in an honours or department major program in Economics or the Faculty of Commerce. The resource concept and concepts of conservation. The regional approach to resource management.

Case studies of the problems in developing particular natural resources and of interstate areas of poor economic health, with emphasis on the regional and natural parts of such developments. Special emphasis will be given to Canadian problems and those of selected underdeveloped countries. (full course)

Geography N-362 (242)

Quantitative Geography I

Prerequisite: Geography N-261. An introductory course in the applications of descriptive and analytical statistical techniques in Geography. Lecture and laboratory. (half course)

NOTE: Only one full credit will be given from among Economics N-375, Geography N-362 and N-363, Mathematics 241, Quantitative Methods N-243 and N-244, Statistics 242, Sociology N-241, Psychology N-241 and N-242.

Geography N-363 (243)

Quantitative Geography II

Prerequisite: Geography N-362. A study of selected multivariate techniques and their application in geography. Practical projects using computer facilities will be assigned. A credit in Computer Science would be an asset. (half course)

NOTE: Only one full credit will be given from among Economics N-375, Geography N-362 and N-363, Mathematics 241, Quantitative Methods N-243 and N-244, Statistics 242, Sociology N-241, Psychology N-241 and N-242.

Geography N-371 (471)

Biogeography

Prerequisite: Geography N-271 or enrolment in an honours or major program in a department in the Faculty of Science. A study of distribution of plants and animals with emphasis on their soil and climatic interrelations. Relevant field trips are included. (full course)

Geography N-372 (472)

Physical Geography

Prerequisite: Geography N-271, or enrolment in an honours or department major program in the Faculty of Science. A review of modern theories and techniques in geomorphology, hydrology, pedology, denudation chronology, and landscape classification. The course includes a discussion of the Pleistocene Epoch in terms of applied research methods. (full course)

Geography N-373 (473)

Climatology

Prerequisite: Geography N-271, or enrolment in an honours or department major program in the

Faculty of Science. The broad aspects of world regional climates considered from the point of view of both physical and dynamic climatology. The course includes practical work. (full course)

Geography N-391 (461)

History of Geographical Thought

Prerequisite: Geography N-211. A study of the development of the field of geography from ancient times down to the present. Representative geographical works of the Greeks, the Romans, and of the Middle Ages. The Age of Discovery, the 19th and the 20th centuries will be examined and discussed. The present day concepts of the field and function of geography will receive special attention. (half course)

Geography N-412 (412)

Political Geography

Prerequisite: Geography N-316 or permission of the Department. A systematic approach to political geography, at the international and intra-state scales. Emphasis will be on the role of geopolitics and on the interaction of socio-economic fields with politico-administrative spatial structures. (full course)

Geography N-422 (422)

Historical and Political Geography of Quebec and Ontario

Prerequisite: Geography N-341. A study of an historical nature of past geographic patterns — economic, social, cultural and political — in Quebec and Ontario. (full course)

Geography N-423 (411)

Historical and Political Geography of Europe

Prerequisite: One of Geography N-316, N-321, N-331, N-343. A regional survey of the geographical evolution of European nations and states. Consideration will be given to cultural differentiation and to the distribution of population. (full course)

Geography N-434 (434)

Applied Urban Geography

Prerequisite: Geography N-331. A study of urban centres today with the emphasis on the problems arising from urban growth. Attention will be given to the various ways of guiding urban growth — zoning by-laws, and European development controls, and the possibilities of planned development. (full course)

Geography N-451 (452)

Special Seminar in Economic Geography

Prerequisites: Geography N-355 and N-362 or permission of the instructor. This course will provide opportunities to senior students for

discussion and advanced study. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. (full course)

Geography N-457 (460)

Geography of Transportation

Prerequisite: Geography N-355 or permission of the Department. A study of patterns of transport facilities and traffic flows. Emphasis will be on general concepts of route alignment, network layouts, and on applications of spatial interaction models to economic flows. (half course)

Geography N-458 (458)

Geography of Agriculture

Prerequisite: Any 300-level Geography course or enrolment in an honours or major program in a department in the Faculty of Science. Classification of agriculture systems; food production in relation to new biological, cultural and marketing developments. There will be some consideration of land use mapping and land potential assessment. (half course)

Geography N-466 (466)

Applied Cartography

Prerequisites: Geography N-261 and two additional credits in Geography. Advanced techniques in map and diagram making and usage related to all aspects of human and physical geography, with special emphasis on the practical solution of cartographic problems. Practice periods and assignments. (full course)

Geography N-475 (475)

Hydrology I

Prerequisite: Any 300-level Geography course or enrolment in an honours or major program in a department in the Faculties of Science or Engineering. Theories and practice of hydrology with emphasis on geographical aspects and resource utilization. Includes introduction to glaciology. (half course)

Geography N-476 (476)

Hydrology II

Prerequisite: Geography N-475. Soil moisture experiments, textural analysis, hydrological models and field trips. (half course)

NOTE: Students who have credit for Geography N-475; or 475 before 1973-74 may not take this course for credit.

Geography N-491 (492)

Research Methods

Prerequisite: Permission of the Department. A selected review of the methods and techniques used to acquire and process original geographical information in the field and laboratory. Includes field work and practical sessions. (full course)

HISTORY

*Associate Professor and Chairman
of the Department*

Robert E. Wall

Professors

Alan H. Adamson

E.E. McCullough

J. Cameron Nish

Lionel Rothkrug

George Rudé

Jean-Pierre Wallot

Associate Professors

Frank A. Chalk

J. Terry Copp

Donald Ginter

John L. Hill

Frederick H. Krantz

John F. Laffey

Stephen Scheinberg

Irving H. Smith

Assistant Professors

Charles L. Bertrand

Frederick Bode

Robin B. Burns

Richard J. Diubaldo

Martin Singer

History N-210 (213)

History of Europe in the Modern World

A survey of European civilization from the 15th century to the present day. An attempt is made to present an integrated picture of all aspects of European culture in the period of its rise to a dominant position in the world. (full course)

NOTE: Students who have credit for History 013 may not take this course for credit.

History N-211 (211)

History of Ancient and Medieval Civilization

The story of early mankind is outlined, and the origins of the great civilizations of Europe and Asia are studied. After surveying the classical civilizations, the course concludes with a study of the medieval period. (full course)

NOTE: This course does not fulfill prerequisite requirements for advanced courses in History. Students who have credit for History 011 may not take this course for credit.

History N-221 (221)

History of Canada since 1534

A study of the growth of Canada from the age of exploration to the present time. Emphasis is placed on the political, economic and cultural developments which are of significance in the understanding of the problems of today. (full course)

NOTE: Students who have credit for History 021 may not take this course for credit.

N-251 (251)

History of the United States

An analysis of the development of the United States, emphasizing the formation of classes and interest groups in early America, the significance and impact of slavery, the sectional battle over national power and its resolution through Civil War and Reconstruction, the development of the modern corporation, the organization of the labor movement,

the impact of racism, and the course of American expansion. (full course)

NOTE: Students who have credit for History 451 or 051 may not take this course for credit.

History N-261 (261)

Historical and Cultural Background of Modern Asia

A survey of the major intellectual traditions, social structures and political institutions of South and East Asia, with particular attention to the changes in the societies of India and China during the past two centuries. (full course)

NOTE: Students who have credit for History 061 may not take this course for credit.

History N-321 (423)

Canada in Colonial Period: 1500-1840

Prerequisite: History N-210 or N-221.

An intensive study of Canada from European contact to the Act of Union. (full course)

History N-322 (424)

Modern Canada: 1840 to the present

Prerequisite: History N-210 or N-221. An intensive study of the political, economic and cultural development of Canada since the Act of Union. (full course)

NOTE: Students who have credit for History 024 may not take this course for credit.

History N-323 (422)

French Canada to 1840

Prerequisite: History N-210 or N-221. An intensive study of Canada during the colonial regime. Much of the material will be in French. (full course)

History N-324 (426)

Quebec: 1840 to the Present

Prerequisite: History N-221 or N-332 previously or concurrently. An intensive study of Quebec

since the Act of Union. While due importance will be devoted to the political history of Quebec, the purpose of the course is to provide a study in depth of the social, economic and cultural institutions of Quebec. (full course)

History N-331 (412)

History of Medieval Europe

Prerequisite: second-year standing. A study of the society and institutions of medieval Europe from the fall of Rome to the end of the 15th century. (full course)

History N-332 (414)

History of Early Modern Europe, 1400-1640

Prerequisite: History N-210. European history during the period of the Renaissance and the Reformation, including a study of the foundations of the political and economic systems of modern times. (full course)

History N-333 (415)

Enlightenment and Revolution, 1640-1848

Prerequisite: History N-210. European history in the age of the French Revolution, including a study of the scientific and industrial revolutions. (full course)

History N-334 (416)

Europe since 1848

Prerequisite: History N-210. A study of the internal development and external relations of the most important states of western Europe since the middle of the 19th century. (full course)

NOTE: Students who have credit for History 016 may not take this course for credit.

History N-335 (442)

Social and Intellectual History of Early Modern Europe

Prerequisite: History N-210. A study of change and continuity in European society and culture, 1300 - 1650. Problems studied include feudal-capitalist relationships, the Italian Renaissance, Northern State Development, Protestant Reformation, Scientific Revolution, and European Colonial expansion. Methodological issues will be emphasized. (full course)

History N-336 (444)

Social and Intellectual History of Modern Europe

Prerequisite: History N-210. The intellectual systems arising in Europe since the 17th century will be explored in the context of the economic and social circumstances which engendered them. This course will begin with the rise of theories of "possessive individualism" and will end with the contemporary cultural crisis. While attention will be paid to the general dynamics of culture, special

attention will be devoted to the social functions of particular ideologies. (full course)

History N-337 (413)

History of European Diplomacy, 1870 to the Present

Prerequisite: History N-210 or Political Science N-385. An intensive study of the relations amongst the Great Powers of Europe from the Franco-Prussian War to the present. (full course)

History N-341 (441)

History of Russia

Prerequisite: History N-210. This course traces the origin of the Slavic-speaking peoples in Europe and the emergence of the Russian Empire. It discusses the ideology and history of Bolshevism, and the period under communist government in the U.S.S.R. and among the Slavic peoples. (full course)

History N-342 (445)

Problems in Russian and Soviet History

Prerequisites: History N-210; N-341 or permission of the instructor. This course deals with specific problems in Tsarist and Soviet Russia. In the Pre-Revolutionary period attention is focussed on the emancipation of the peasantry, industrialization and the growth of the opposition parties. In the Soviet period emphasis is placed on the problem of economic growth, the changing pattern of Soviet Marxism and the nature of Soviet foreign policy. (full course)

History N-345 (431)

History of Britain since 1460

Prerequisite: History N-210; students honouring in English may register without prerequisite. A survey of the political, economic, and social development of modern England. Emphasis is placed on the evolution of parliamentary government in the early period, on the economic changes of the 18th and 19th centuries, and on the modern growth of democracy and the social service state. (full course)

History N-351 (453)

Colonial and Early National History of the United States

Prerequisite: History N-210 or N-251. The period of colonization, the development of colonial institutions, the war of independence and the emerging fabric of national life. (full course)

History N-352 (459)

Jacksonian Era, Civil War, and Reconstruction in the United States

Prerequisite: History N-210 or N-251. The development of American political, social and

economic life in the 19th century, including sectionalism and expansion, the characteristics of plantation slavery as a social system, the coming of the Civil War, and the aims and outcome of Reconstruction. (full course)

NOTE: Students who have credit for History 457 or 458 may not take this course for credit.

History N-354 (456)

History of the United States since 1900

Prerequisite: History N-210 or N-251. This course examines major themes of modern American society including the politics of reform, strategies for black survival, and movements for social change. The major emphasis is given to domestic themes. (full course)

History N-355 (455)

Foreign Relations of the United States

Prerequisite: History N-210 or N-251. An analysis of United States foreign policy from 1776 to the present, emphasizing the development of American expansion, America's foreign economic thrust, the origins of the Cold War, America's response to the challenge of revolution in Asia, Africa, and Latin America, and major issues in Canadian-American relations. (full course)

History N-358 (452)

History of Latin America

Prerequisite: History N-210, or enrollment in the major in Spanish. This course deals with the political, social and economic history of Latin America from the founding of the Spanish Empire to the present day. The development of the principal independent republics is studied, and attention is given to the growth of Inter-Americanism and to the place of Latin America in the modern world. (full course)

History N-361 (461)

History of South and Southeast Asia

Prerequisite: History N-261, or permission of the instructor. A study of the historical background of India, Pakistan, Bangladesh, and the states of Southeast Asia. The course begins with a review of indigenous developments prior to the era of European expansion and proceeds to a more detailed examination of the political, social, and economic changes in modern times, concluding with a study of the problems faced by these countries since the achievement of independence. (full course)

History N-362 (462)

History of China and Japan

Prerequisite: History N-261, or permission of the instructor. The course begins with a review of the traditional societies of China and Japan, and then examines the contrasting response in the two lands to the impact of Western imperialism in the 19th and 20th centuries, concluding with a study

of developments since the Second World War. (full course)

History N-365 (481)

History of Africa

Prerequisite: History N-210 or N-261. An analysis of African history, including Egypt and North Africa, from the beginnings of African societies to the present, emphasizing the rise of African kingdoms, the coming of Europeans and the slave trade, African responses to economic imperialism and colonialism, and contemporary Africa's quest for autonomy, economic development, and the liberation of southern Africa. (full course)

History N-390 (472)

Historical Method

Prerequisites: At least two credits in History and written permission of the History program advisor. A course in the application of modern historical criticism to a specific problem to be chosen in consultation with the instructor. (full course)

History N-421 (421)

Advanced Study in Canadian History

Prerequisite: A '300' level course in History, or permission of the Department. Seminar for honours and major students in a selected topic in the history of Canada. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (full course)

History N-431 (434)

Advanced Study in European History

Prerequisite: a '300' level course in History, or permission of the Department. Seminar for honours and major students in a selected topic in the history of Europe. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (full course)

History-Humanities of Science N-446 (446)

Advanced Study in the History of Science

Prerequisite: Permission of the instructor. Seminar in a selected topic in the History of Science. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (full course)

NOTE: With permission of the instructor, a student may take this course twice for credit, provided that a different subject is dealt with the second time. A student repeating Humanities of Science N-446 for credit will register under Humanities of Science N-447.

NOTE: Students who have credit for Humanities of

Science N-446 may not take this course for credit.

History-Humanities of Science N-447 (447)

Advanced Study in the History of Science

Prerequisite: Permission of the instructor. A student repeating Humanities of Science N-446 for a second time registers for credit under Humanities of Science N-447. (full course)

History N-451 (451)

Advanced Study in American History

Prerequisite: A '300' level course in History, or permission of the Department. Seminar for honours and major students in a selected topic in the history of the United States. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (full course)

History N-461 (463)

Advanced Study in Asian and African History

Prerequisite: A '300' level course in History, or permission of the Department. Seminar for honours and major students in a selected topic in the history of Asia and Africa. The emphasis will be on encouraging students to conduct historical investigation on their own under a professor's guidance. The specific content will vary from year to year depending on the instructor. (full course)

History N-490 (474)

Honours Essay

Prerequisite: Honours students only. A course in the application of modern historical criticism to a specific problem to be chosen in consultation with the instructor. (full course)

History N-491 (473)

Advanced Study in a Special Subject

Prerequisite: Permission of the Department. This course, intended primarily for honours or major students, affords an opportunity for more intensive examination of a particular historical theme than is possible in the normal lecture course. The specific subject will vary according to the special interest of the professor offering the course in any given year. (full course)

NOTE: With permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. A student repeating History N-491 for credit will register under History N-492.

History N-492 (475)

Advanced Study in a Special Subject

Prerequisite: Permission of the Department. A student repeating History N-491 a second time registers for credit under History N-492. (full course)

History-Sociology N-493 (493)

History and Sociology

Prerequisites: An introductory course in History and in Sociology, and second or third year standing. An exploration of the relationships between historical and sociological approaches to the description and analysis of social conditions and social events, paying special attention to questions of methodology and conceptualization. (full course)
NOTE: This course may be counted as a credit in either History or Sociology.

Cognate Courses:

Classics N-221

History of Greece and Rome

Humanities of Science N-441

Advanced Study in the History of Science

POLITICAL SCIENCE

*Associate Professor and
Chairman of the
Department*
Harold M. Angell
Professor
Hubert Quinn
Associate Professors
Paris Arnopoulos

Klaus J. Herrmann
Lalita P. Singh
Assistant Professors
Robert A. Fraser
Horst Hutter
Harvey Shulman

Area I - Theory

N-220 - Introduction to Political Theory
N-311 - History of Political Theory
N-413 - Modern Political Ideologies
N-415 - Political Analysis

Area II - Comparative Politics

N-240 - Comparative Politics
N-333 - Problems of Public Administration
N-350 - Government and Politics of the United States

N-353 - Soviet and Eastern European Politics
N-355 - Politics of Developing Areas
N-451 - Political Systems of Western Europe
N-458 - Political Parties

Area III - International Relations

N-270 - International Relations
N-385 - Diplomacy and Foreign Policy
N-481 - International Law
N-483 - International Organization

Area IV - Canada

N-231 - Public Law

N-330 - Government and Politics of Canada

N-334* - Urban Politics

N-335* - Quebec Politics

N-436* - Canadian Federalism

N-437* - Canadian External Affairs

Political Science N-220 (210)

Introduction to Political Theory

A course in political theory and methodology which will deal with some of the basic concepts of politics such as justice, liberty, equality, as well as the terminology, tools and techniques used in the study of political phenomena. (full course)

NOTE: Students who have credit for Political Science N-210 or 010 may not take this course for credit.

Political Science N-231 (291)

Public Law

This course is designed to provide students with an elementary knowledge of those institutions and problems of law of which they may reasonably be expected as citizens to have some understanding and appreciation. As a background to this study the meaning of law and its various divisions will be treated with a view to relating the legal order to present day problems of society. Topics will include the organization and functioning of the federal and provincial court systems including the appointment and selection of the judiciary; the various stages in a lawsuit; a brief consideration of the Quebec civil law as it affects the question of marriage and the more common contracts such as sale, lease and partnership. (full course)

NOTE: Students who have credit for Political Science 091 may not take this course for credit.

Political Science N-240 (211)

Comparative Politics

A course in comparative politics with special emphasis on the dynamics of the political process. Going beyond constitutional and institutional procedures, this course will include the study of informal realities of decision-making. Most of the illustrative content is based on a comparative study of Canada, the United States, Great Britain, and France. (full course)

NOTE: A student who has credit for Political Science 011 may not take this course for credit.

Political Science N-270 (421)

International Relations

A course in world affairs dealing with the political, ideological, and cultural relations between states, and the main characteristics of the global power system. (full course)

NOTE: A student who has credit for Political Science 021 may not take this course for credit.

Political Science N-311 (431)

History of Political Theory

A critical study and analysis of such great thinkers as Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Hegel, Bentham and Mill, on problems of politics. This course is designed to give a survey of systematic political reasoning from the classical period up to the middle of the 19th century in an endeavour to show the foundations of modern political thought. (full course)

NOTE: Students who have credit for Political Science 031 may not take this course for credit.

Political Science N-330 (251)

Government and Politics of Canada

A study of the British North America Act and its judicial interpretation; the nature of Canadian federalism; the parliamentary system; nature and organization of political parties: provincial and municipal governments; law and the courts. (full course)

NOTE: A student who has credit for Political Science 051 may not take this course for credit.

Political Science N-333 (441)

Problems of Public Administration

Prerequisite: Political Science N-240 or N-330.

This course deals with the nature and function of the administrative branch of government. The student is introduced to such problems as the organization of government departments, the management of government corporations, budgeting, selection and training of personnel, maintenance of morale and discipline, relationship between legislature and administration, relationship between the administration and the public. (full course)

Political Science N-334 (434)

Urban Politics

Prerequisite: Political Science N-240 or N-330.

A course in municipal government. The first part of the course will deal with local government in general and Canadian municipal government in particular. The second part will concentrate on the governments of metropolitan Montreal and their relations to each other and to the Provincial Government. (half course)

Political Science N-335 (435)

Quebec Politics

Prerequisite: Political Science N-330. A study of the changing party structure and political issues in Quebec and their relationship to constitutional, cultural and economic factors. Some of the reading material will be in French. (half course)

Political Science N-350 (450)

Government and Politics of the United States

A study of American politics which will deal not only with formal political institutions such as the

legislature, the executive, and the judiciary, but also the processes and problems of government: public opinion, political parties, pressure groups, health and welfare, foreign policy and racial problems. (full course)

NOTE: A student who has credit for Political Science N-354 or 414 may not take this course for credit.

Political Science N-353 (453)

Soviet and East European Politics

A study of the constitutional, political, and administrative system of the Soviet Union and the East European states. Emphasis will be placed on the continuing evolution of the Communist system and the changing relationship between the Soviet Union and the other states. (full course)

NOTE: A student who has credit for Political Science N-352 or 413 may not take this course for credit.

Political Science N-355 (455)

The Politics of Developing Areas

A study of the politics and structure of government in developing areas such as Asia, Africa, or South America against the background of social and economic change since World War II. The specific area which will be studied will vary from year to year depending on the interests of the instructor giving the course. (full course)

NOTE: Students who have credit for Political Science N-356 may not take this course for credit.

Political Science N-385 (485)

Diplomacy and Foreign Policy

Prerequisite: Political Science N-270. Foreign and defence policies of the Great Powers; diplomacy, military strategy and intelligence; methods and techniques of policy-making and enforcement. (full course)

Political Science N-413 (432)

Modern Political Ideologies

Prerequisite: Political Science N-210 or N-220 or N-311, or Philosophy N-271. This course will cover political theories of the 19th and 20th centuries, dealing with such ideologies as Liberalism, Conservatism, Marxism, Democratic Socialism and Fascism. (full course)

Political Science N-415 (433)

Political Analysis

Prerequisite: Major or honours student in Political Science who has taken Political Science N-220 or N-311; or permission of the Department. A study of the contemporary subject matter and methods of political science. The course deals with:

1) fundamental concepts, principles, institutions, and processes of politics; 2) methods, techniques, instruments and data of social sciences; 3) present theories, such as functionalism, behaviouralism, formalism; 4) political ideals and their impact on policy making and social control. In addition to the theoretical analysis, critique, and evaluation of the latest thinking in political science, the student will participate in the testing and practical laboratory periods. (full course)

Political Science N-436 (451)

Canadian Federalism

Prerequisite: Political Science N-330. A critical and analytical study of the theory of federal government and its application to the nature, principles and techniques of federalism in Canada. The reaction of the Canadian federal system to the demands of cultural dualism and regional pressures. Some attention will also be given to the problems of provincial governments in their pressure on and adjustment to Dominion-Provincial relations. (half course)

Political Science N-437 (452)

Canadian External Affairs

Prerequisite: Political Science N-270, or N-330, or History N-337. This course will study Canada's position in the world. The presentation will include an outline of the diplomatic history of Canada, as well as an analysis of its foreign and defence policies. Emphasis will be given to the decision-making process by which policy is formulated and executed, with particular reference to Canadian relations vis-a-vis the Americans; the Commonwealth; and the United Nations. (half course)

Political Science N-451 (412)

Political Systems of Western Europe

Mainly a comparative study of the political systems of Britain, France and Western Germany, but some consideration will be given to the smaller states in Western Europe, such as Switzerland and the Scandinavian countries. (full course)

NOTE: Students who have credit for either Political Science 416 or 417 before 1969-70 may not take this course for credit.

Political Science N-458 (411)

Political Parties

Prerequisite: Political Science N-240, or N-451. A study of the history, ideology, organization and electoral geography of political parties in the United States, England, France, Germany, and some of the smaller countries in Western Europe. The course will also deal with the different types of party systems, the nature and function of parties in the democratic process, the nature of political elites, pressure groups, the organization of

elections, and political propaganda. Lectures, discussions and term paper. (full course)

Political Science N-481 (423)

International Law

This course will survey the theory and practice of international law from its traditional classical origins to the modern contemporary developments with emphasis on the political and interstate relations aspects. The first half of the course will include basic concepts of the nature of law, state sovereignty, treaties, nationality, jurisdiction, recognition, arbitration, and cases of international legal order; control of world conflicts, codification of law, settlement of disputes by the International Court of Justice, human rights, and the relation of law to power politics. (full course)

Political Science N-483 (422)

International Organization

Prerequisite: Political Science N-270, or N-385,

or N-481. The historical development of the concepts of international organization with special emphasis upon the 19th and 20th centuries. The League of Nations and the United Nations with its specialized agencies will be examined carefully. In addition, certain other international bodies of a regional or specialized nature such as NATO and GATT will be considered. (full course)

NOTE: Only one full credit will be given from Political Science 221 and 422.

Political Science N-491 (491)

Honours Seminar

Prerequisite: Open to third-year honours students, or by permission of the Department. Students will choose a topic from one of the various fields in political science. Each student must prepare and submit an appropriate research paper, under the supervision of the Department. (full course)

PSYCHOLOGY

*Professor and Chairman
of the Department*

Jane Stewart

Professors

G. M. Mahoney

Joseph P. Zweig

Associate Professors

David H. Andres

June S. Chaikelson

Gabriel R. Breton

Dolores Gold

A. Harold Goldsman

William R. Hooper

Tannis Y. Maag

Erat S. Nayar

Campbell W. Perry

Alex Schwartzman

Edgar B. Zurif

Assistant Professors

Zalman Amit

William Brender

Thomas Gray

Anthony Hilton

George R. Marshall

S. R. Munoz

Nancy D. Taylor

Roy A. Wise

Lecturer

George Nemeth

Assistant Professor of

Education and Psychology

Donna White

NOTE: Courses entitled "Selected Problems in..." are intended for students majoring in fields other than Psychology. A student may register for only one of these courses per term.

Psychology N-211 (211)

Introductory Psychology

The purpose of this course is the development of an adequate understanding of known principles of behaviour and experience. The work includes a study of the sense organs and nervous system, perception, learning, memory, motivation and the basic needs, emotional reactions, personality development, adjustment and integration, abnormal personality, mental abilities and aptitudes, social aspects of behaviour and the applications of psychology. (full course)

NOTE: Students who have credit for CEGEP Psychology 101 and 201, or 011 may not take this course for credit.

Psychology N-212 (212)

Selected Problems in Learning and Motivation A

Prerequisite: Psychology N-211 or 011, or CEGEP Psychology 101 and 201, or second year standing.

This course will deal with a selected problem in learning and motivation to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: operant behaviour; memory; teaching and learning; maternal behaviour; aggression; sleep. (half course)

NOTE: Students who have credit for Psychology 421, or N-421, or 422, or N-422 may not take this course for credit.

Psychology N-213 (213)

Selected Problems in Learning and Motivation B

Prerequisite: Psychology N-211 or 011, or CEGEP Psychology 101 and 201, or second year standing.

This course will deal with a selected problem in learning and motivation to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: operant behaviour; memory; teaching and learning; maternal behaviour; aggression; sleep. (half course)

NOTE: Students who have credit for Psychology 421, or N-421, or 422, or N-422 may not take this course for credit.

Psychology N-214 (251)

Selected Problems in Individual Differences A

Prerequisite: Psychology N-211 or 011, or CEGEP Psychology 101 and 201, or second year standing.

This course will deal with a selected problem in individual differences to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: creativity; intelligence; self-awareness and self-esteem; leadership. (half course)

Psychology N-215 (252)

Selected Problems in Individual Differences B

Prerequisite: Psychology N-211 or 011, or CEGEP Psychology 101 and 201, or second year standing.

This course will deal with a selected problem in individual differences to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: creativity; intelligence; self-awareness and self-esteem; leadership. (half course)

Psychology N-241 (241)

Statistical Methods in Psychology A

Prerequisites: Any two CEGEP half courses in mathematics. A basic course in the fundamentals of statistics for psychology and education. Topics include: the construction of frequency distributions; graphic presentation; measures of central tendency and dispersion; correlation and linear regression; elementary probability theory; the binomial distribution and the normal curve; sampling or the reliability of statistics and tests of significance; Chi square; analysis of variance; miscellaneous non-parametric techniques. Lectures and laboratory. (full course)

NOTE: Only one full credit will be given from among Economics N-471, N-375, Geography N-362 and N-363, Mathematics 241, Quantitative Methods N-243 and N-244, Statistics 242, Sociology N-241, Psychology N-241 and N-242.

Psychology N-242 (242)

Statistical Methods in Psychology B

Prerequisite: one half credit in 'Statistics and Probability' at the CEGEP level, or equivalent.

A course in the fundamentals of statistical inference for psychology. (full course)

NOTE: Only one credit will be given from among Economics N-375, Economics N-471, Geography N-362 and N-363, Mathematics 241, Quantitative Methods N-243 and N-244, Statistics 242, Sociology N-241, Psychology N-241, and Psychology N-242.

Psychology N-271 (271)

Experimental Psychology 1A

Prerequisite: Psychology N-211 or 011, or CEGEP Psychology 101 and 201. An examination of experimental method in psychology with an introduction to statistical techniques (primarily descriptive statistics) and laboratory experience in methodology appropriate to all areas of psychology. Lectures and laboratory. (full course)

NOTE: Students who have credit for Psychology 273 may not take this course for credit.

Psychology N-273 (273)

Experimental Psychology 1B

Prerequisites: Psychology N-211 or 011, or CEGEP Psychology 101 and 201; Psychology N-241 or N-242 previously or concurrently, and permission of the Department. An examination of experimental method in psychology, with laboratory experience in techniques appropriate to important problem areas. Lectures and laboratory. (full course)

NOTE: Students who have credit for Psychology 271 may not take this course for credit.

Psychology N-302 (436)

Selected Problems in Development A

Prerequisite: Second year standing. This course will deal with a selected problem in development to be announced each year. The course will be designed to allow a student to explore a problem in considerable depth starting from first principles. Possible topics are: perception of spoken and written language; developmental language disability; learning in infancy and early childhood; critical periods in early development. (half course)

Psychology N-303 (435)

Selected Problems in Development B

Prerequisite: Second year standing. This course will deal with a selected problem in development designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: perception of spoken and written language; developmental language disability; learning in infancy and early childhood; critical periods in early development. (half course)

Psychology N-304 (440)

Selected Problems in Social Psychology A

Prerequisite: Second year standing. This course will deal with a selected problem in social psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: socialization of the child; social motives; interpersonal attraction; values, beliefs and attitude change; prescriptions for future man. (half course)

NOTE: Students who have credit for Psychology 441 or N-442 may not take this course for credit.

Psychology N-305 (441)

Selected Problems in Social Psychology B

Prerequisite: Second year standing. This course will deal with a selected problem in social psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: socialization of the child; social motives; interpersonal attraction; values, beliefs and attitude change; prescriptions for future man. (half course)

NOTE: Students who have credit for Psychology 441, or N-442 may not take this course for credit.

Psychology N-375 (275)

Directed Study and Research on a Selected Topic

Prerequisite: Psychology N-271 or N-273, and written permission from the Department Chairman and from the supervisor of the research. Under the supervision of a member of the Psychology Department, the student is to carry out and report in writing an independent research project. The area of study must be decided upon through consultation with a faculty member prior to registration. No lectures; consultation and laboratory only. (half course)

NOTE: Students who have credit for Psychology N-275 may not take this course for credit.

Psychology N-402 (450)

Selected Problems in the Application of Psychology A

Prerequisite: Third year standing. This course will deal with a selected problem in the application of psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: personnel selection technique; rehabilitation, psychological foundations; criminal behaviour; behaviour disorders; sexual differentiation; drugs and behaviour. (half course)

Psychology N-403 (449)

Selected Problems in the Application of Psychology B

Prerequisite: Third year standing. This course will

deal with a selected problem in the application of psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. Possible topics are: personnel selection technique; rehabilitation, psychological foundations; criminal behaviour; behaviour disorders; sexual differentiation; drugs and behaviour. (half course)

Psychology N-404 (404)

Selected Problems in Psychology A

Prerequisite: Third year standing. This course will deal with a selected problem in psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. The particular topic discussed will vary from year to year. (half course)

Psychology N-405 (405)

Selected Problems in Psychology B

Prerequisite: Third year standing. This course will deal with a selected problem in psychology to be announced each year. The course will be designed to allow the student to explore a problem in considerable depth starting from first principles. The particular topic discussed will vary from year to year. (half course)

Psychology N-412 (412)

Modern Psychology in Historical Perspective

Prerequisite: Psychology N-211 or 011, or CEGEP Psychology 101 and 201. This course consists of an outline of the history of psychology from early times up to the recent past. The work includes the ancient and medieval background of psychology; the early contributions from the fields of physics and physiology; psychophysics; and historical background of the various schools of psychological thought from the late nineteenth century to the present day. (full course)

Psychology N-413 (413)

Contemporary Problems in Psychology

Prerequisite: Open to third year honours students or by permission of the Department. An intensive treatment of current major problem areas in psychology. (full course)

Psychology N-421 (421)

Learning

Prerequisite: Psychology N-271 or 273. A study of empirical findings and theoretical issues in the fields of animal and human learning. Topics covered include conditioning, discrimination learning, transfer, verbal learning, and classic and contemporary theoretical issues. (full course)

Psychology N-422 (422).

Motivation

Prerequisite: Psychology N-271 or N-273.

Causal analysis of (for example) sleep, hunger, pain, sex, conflict, self-actualization, territoriality, aggression, population-density-dependent behaviour, cooperation and competition. Theories and myths vs. empirical data from physiological, behavioral, and politico-socio-economic studies, both animal and human. (full course)

Psychology N-428 (427)

Measurement in Psychology

Prerequisite: Psychology N-271 or N-273. A consideration of the general problems of measurement in psychology, including instrumentation and scaling procedures for measurement of psychological and physiological processes in the areas of sensation and perception, learning, social psychology and the psychology of individual differences. The use of various psychometric techniques in measurement of achievement, aptitude and personality will be appraised and questions of reliability and validity of tests will be discussed. (full course)

Psychology N-432 (432)

Perception

Prerequisite: Psychology N-271 or N-273. The physiological bases of sensation and perception and their relation to the basic psychological phenomena encountered in vision, audition, and the other senses will be studied. Phenomena such as pattern perception and the perception of distance and movement will be analyzed. The effects of learning, motivation, and social factors upon perceptual processing will also be examined. (full course)

NOTE: Students who have credit for Psychology 431 may not take this course for credit.

Psychology N-434 (434)

Cognitive Processes

Prerequisite: Psychology N-271 or N-273. An investigation of the complex processes intervening between the stimulus and the response. Topics discussed will include cognitive and language development, psycholinguistics, organization and memory, problem-solving, concept formation, creativity, and cognitive and language disability. (full course)

NOTE: Students who have credit for Psychology 433 or 431 after 1968-69 may not take this course for credit.

Psychology N-438 (438)

Developmental Psychology

Prerequisite: Psychology N-271 or N-273. An experimental and comparative approach to human development from conception to old age, with emphasis on the period from birth to adolescence. Topics discussed will include language, social behaviour, intelligence, learning and perception. (full course)

NOTE: Students who have credit for Psychology 231 or 437 may not take this course for credit.

Psychology N-442 (442)

Social Psychology

Prerequisite: Psychology N-271 or N-273. A study of social factors in the behaviour and attitudes of the individual and of groups, including a survey of the psychology of bias, prejudice, stereotypes, propaganda, opinion, individual and group morale, group dynamics and sociometry. (full course)

NOTE: Students who have credit for Psychology 441 may not take this course for credit.

Psychology N-452 (452)

Personality

Prerequisite: Psychology N-271 or N-273. The course surveys the various theories of personality and relationships between personality and behaviour. Individual differences in personality will be studied along with related factors such as age, sex, education, genetic and other physical factors, socio-economic level and other cultural factors. A brief survey and review of basic statistical concepts will be included along with a short introduction to personality measurement. (full course)

NOTE: Students who have credit for Psychology 451 may not take this course for credit.

Psychology N-454 (454)

Behaviour Disorders

Prerequisite: Psychology N-271 or N-273. A study of the etiology and description of behaviour and psychological disorders, including the psychoneuroses, psychoses and psychosomatic conditions. (full course)

Psychology N-461 (461)

Physiological Psychology

Prerequisites: Psychology N-211 or 011, or CEGEP Psychology 101 and 210, or 111; and Psychology N-271, or N-273, or one full course in Physiology or General Biology at the CEGEP level or equivalent. This course attempts to relate neurophysiology to such psychological problems as learning, attention, and emotion. The topics treated include excitation and conduction in the neuron; synaptic mechanism; sensory and motor systems, the internal environment; the

electrical activity of the brain. Emphasis is given to brain damage studies in animals and man, and the problem of localization of function in the nervous system. (full course)

Psychology N-462 (462)

Comparative Psychology

Prerequisite: Psychology 211; Psychology N-271 or N-273 or one full credit in Biology at the CEGEP level, or equivalent. A study of behaviour from a comparative viewpoint. Topics of study will include evolutionary changes in brain and behaviour, behaviour genetics and specific aspects of behaviour such as sensory capacities, motivation, emotion, learning, cognitive abilities and social behaviour. (full course)

Psychology N-471 (471)

Experimental Psychology II

Prerequisites: Psychology N-241 or N-242; N-271 or N-273, and permission of the Department. This course provides experience in the planning, conduct, analysis, and reporting of independent research in the major areas of psychology. Lectures and laboratory. (full course)

Psychology N-472 (472)

Advanced Experimental Problems

Prerequisite: Open to third year honours students, or by permission of the Department. Supervised investigation of special problems. Each student will be required to conduct an experimental study and to submit an appropriate research paper of the study, under the supervision of the Department. Lectures and laboratory. (full course)

Psychology N-481 (481)

Psychology of Work Organizations

Prerequisites: Psychology N-271 or N-273; and permission of the Department. The scientific study of human behaviour as it occurs in business and industry; an examination of the roles of workers, managers, and consumers, and studies of the social psychology of organizations. (full course)
NOTE: Students who have credit for Psychology 221 may not take this course for credit.

Psychology N-482 (482)

Psychology of Human Learning in the Classroom

Prerequisites: Psychology N-211 or 011, or CEGEP Psychology 101 and 201; Psychology N-271 or N-273 or enrolment in the Art Education major; and permission of the Department. A systematic examination of psychological principles and research reports which contribute to an

understanding of human learning in the school. (full course)

NOTE: Students who have credit for Psychology 223 may not take this course for credit.

Psychology N-491 (491)

Special Seminar on Selected Topics in Psychology

Prerequisite: Third year honours and major students with permission of the Department. Subject matter will differ from term to term and from year to year to take advantage of the special interests of the seminar leader. The course will provide opportunities to senior students for discussion and advanced study. (half course)

NOTE: With the permission of the Department a student may take this course twice for credit, providing that a different subject is dealt with the second time. A student repeating Psychology N-491 for credit will register under Psychology N-493.

Psychology N-492 (492)

Special Seminar on Selected Topics in Psychology

Prerequisite: Third year honours and major students with permission of the Department. Subject matter will differ from term to term and from year to year to take advantage of the special interests of the seminar leader. The course will provide opportunities to senior students for discussion and advanced study. (half course)

NOTE: With the permission of the Department a student may take this course twice for credit, providing that a different subject is dealt with the second time. A student repeating Psychology N-492 for credit will register under Psychology N-494.

Psychology N-493 (493)

Special Seminar on Selected Topics in Psychology

Prerequisite: Permission of the Department. A student repeating Psychology N-491 for a second time registers for credit under Psychology N-493. (half course)

Psychology N-494 (494)

Special Seminar on Selected Topics in Psychology

Prerequisite: Permission of the Department. A student repeating Psychology N-492 for a second time registers for credit under Psychology N-494. (half course)

SOCIOLOGY AND ANTHROPOLOGY

*Associate Professor of Sociology,
and Chairman of the Department*

Solomon J. Rawin

Sociology

Professors

Ian L. Campbell

Szymon Chodak

Kurt Jonassohn

Hubert Guindon

Harold H. Potter

Associate Professors

H. Taylor Buckner

John P. Drysdale

John D. Jackson

Joseph C. Mouledoux

Joseph Smucker

Assistant Professors

Shirley I. Ciffin

Dennis Forsythe

Anthony Synnott

Anthropology

Professor

Charles S. Brant

Associate Professor

Anatole N. Klein

Area I - Basic Methods, Epistemology and Methodology

Sociology N-241

Sociology N-410

Sociology N-411

Sociology N-412

Anthropology N-413

Anthropology N-494 - N-498

Sociology N-494 - N-499

Statistics

Sociological

Inquiry

Research

Techniques

Fieldwork Research

Problems in Anthropological Method

Special Seminars

Special Seminars

Sociology N-433

Sociology N-446

Sociology N-455

Anthropology N-434

Anthropology N-494 - N-498

Sociology N-494 - N-499

**Selected problems in Socio-
logical Theory**

**Social Class and
Structured Inequality
in Modern Society**

**Comparative
Social Systems**

**History &
Theory of
Anthropology**

**Special Seminars
Special Seminars**

Area II - Social and Symbolic Nature of Man

Sociology N-420

Sociology N-421

Sociology N-422

Sociology N-424

Sociology N-443

Anthropology N-423

Anthropology N-425

Anthropology N-494 - N-498

Sociology N-494 - N-499

Self and Society

Sociology of

Deviance

Sociology of

Knowledge

Sociology of

Religion

Collective Behaviour and Social Movements

Cultural

Anthropology

Religious

Systems

Special Seminars

Special Seminars

Area III - Theory

Sociology N-430

Sociology N-431

Sociology N-432

History of Social Theory

Sociological Theory

Social Organization

Area IV - Special Studies

Sociology N-440

Sociology N-441

Sociology N-442

Sociology N-443

Sociology N-444

Sociology N-445

Sociology N-447

Sociology N-448

Sociology N-449

Sociology N-450

**Community
Studies**

**Sociology of Ur-
ban Regions**

The Family

**Collective Be-
haviour & Social
Movements**

**Intergroup rela-
tions**

**Intergroup rela-
tions in Canada**

Political Sociology

**Population &
Society**

**Area Studies in
Demography**

**Seminar in Urban
and Metropolitan
Studies**

Sociology N-452	Sociology of Law
Sociology N-454	Industrial Sociology
Sociology N-456	History and Sociology
Sociology N-470	Canadian Social Structure
Sociology N-471	Quebec Society
Sociology N-472	Social Structure of the Soviet Union and Eastern Europe
Sociology N-481	Honours Seminar
Anthropology N-458	Peasantry: The Culture of Peasant Societies
Anthropology N-460	Comparative Social Structure and Political Anthropology
Anthropology N-461	State Formation
Anthropology N-462	American Indian
Anthropology N-463	Cultures of India and China
Anthropology N-494 - N-498	Special Seminars
Sociology N-494 - N-499	Special Seminars

Sociology N-210 (212)

Introduction to Sociology

The purpose of this course is to acquaint the student with the diversity of ways of living and forms of social organization in different geographical areas and historical contexts. The content of the course emphasizes the traditional agrarian society and introduces some of the major processes involved in change from traditional to modern types. Readings include a series of basic monographs. (full course)

NOTE: A student who has a credit for Sociology 011 or 211 or 111 may not take this course for credit.

Sociology N-241 (241)

Statistics

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210 and high school Algebra. An introductory course in descriptive and analytical statistical methods for students of sociology. Lectures and laboratory. (full course)

NOTE: Only one full credit will be given from among Economics N-471, N-375, Geography N-362 and N-363, Mathematics 241, Quantitative Methods 243 and 244, Statistics 242, Sociology N-241, Psychology N-241 and N-242.

Sociology N-410 (401)

Sociological Inquiry

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. A study of the logic of sociological inquiry with a focus upon problems of conceptualization, assumptions underlying tests of validity and reliability, and the use of different statistical models in making assertions about social behaviour. (full course)

Sociology N-411 (411)

Research Techniques

Prerequisites: One credit in Sociology at CEGEP level, or Sociology 111 or 011 or 211 or 212, or N-210 and N-241. It is strongly recommended that the student take Sociology N-241 prior to, or concurrently with Sociology N-411. This course deals with the design of research, the methods of data collection, and the techniques of analysis. A research project will be designed and carried out by the students. The emphasis will be on training for the critical reading of published research materials, as well as on training for graduate study. Lectures and laboratory. (full course)

Sociology N-412 (402)

Fieldwork Research

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Methods of fieldwork research in Sociology will be explored and examined in detail. Students will be expected to formulate a research problem appropriate to fieldwork methods. Under the supervision of the instructor they will then carry out the actual research singly or in teams. (full course)

NOTE: Students who have credit for Sociology N-495 or 487 may not take this course for credit.

Sociology N-420 (425)

Self and Society

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. A consideration of theories of symbolic interaction that have influenced sociological analysis. Motivation is viewed in terms of the interplay between actors and social structures, and this approach is illustrated by reference to selected empirical studies. (full course)

Sociology N-421 (433)

Sociology of Deviance

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. The nature of deviant or marginal behaviour: legal and non-legal forms. Socialization to deviance; institutionalization of deviance; so-

cial control of deviance, structure and culture of deviance. Theories of deviant behaviour and their sociological, legal and practical implications. (full course)

Sociology N-422 (495)

Sociology of Knowledge

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. An examination of the interaction between social structures and meaning and belief systems. Of special concern will be the social influences bearing upon claims to truth and validity and upon definitions of social morality. (full course)

Sociology N-424 (432)

Sociology of Religion

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. The major focus is on the institutionalization of religion. The interpretation of religious phenomena is sociological and not philosophical or theological, and stays within the tradition of historical and phenomenological studies of religion (Otto, Van der Leeuw, Eliade). Emphasis is placed on the approaches of sociology of knowledge and comparative sociology (Weber, Durkheim, Berger, Luckmann). (full course)

Sociology N-430 (423)

History of Social Theory

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. Introduction to major theorists whose main works will be read and discussed. Emphasis will be on the classics, to 1920, especially Comte, Spencer, Marx, Ward, Sumner, Mead, M. Weber, Simmel, Durkheim and Pareto. Lectures and seminar. (full course)

Sociology N-431 (424)

Sociological Theory

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Analysis of the major trends and issues in twentieth century European and North American sociological theory. Emphasis is placed on issues and writings of contemporary significance. Attention is given to the major theoretical orientations, including neo-positivism, functionalism, neo-Marxism, symbolic interactionism, phenomenology, and their respective critics. (full course)

Sociology N-432 (428)

Social Organization

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. A study of different methods of coordinating human action in social group operations under

different environmental conditions. Particular focus is on role systems connected with multi-group structures. The course begins with the analysis of roles and groups, examines the process of group formation and ends with a comparative study of diverse and altering structures in major institutional areas of organization. (full course)

Sociology N-433 (437)

Selected Problems in Sociological Theory

Prerequisites: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210 and permission of the Department. Additional prerequisites may be added according to subject matter. This course is designed to provide students with an opportunity to study selected theoretical problems and/or theorists. Subject matter will vary according to the interests of students and faculty. (full course)

Sociology N-440 (404)

Community Studies

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. Based upon selected community studies, this course will focus upon an interpretation of the findings of these studies within the larger context of urbanization and industrialization with special emphasis given to the methodology of community studies. (half course)

Sociology N-441 (441)

Sociology of Urban Regions

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. The physical and social characteristics of urban communities are studied with special attention paid to ecological patterns and ecological process. Forms of adjustment, co-operation and control are included in these studies. (half course)

Sociology N-442 (442)

The Family

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. Types of mate selection and types of marriage. Theories about the history of the human family. Models of family structure and family interaction. Empirical studies. Illegitimacy, family planning, old age, divorce, and psychodrama are treated. (full course)

Sociology N-443 (422)

Collective Behaviour and Social Movements

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. Characteristics of collective behaviour, its origin, development, and relationship to formal

social structures. Methods of study and theories to explain the observed processes. The nature and function of social movements; their life histories and their relationship to the larger society. Specific case studies of religious, racial, and political movements. (full course)

Sociology N-444 (447)

Intergroup Relations

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. This course is concerned with the sociology of macro-group relations. The emphasis is on the social definition of race. The significance of colour, language, cultural and ethnic differences is examined within a context of stratification and power differentials. Attention is devoted to Caribbean societies, the U.S.A., South Africa and Rhodesia. The decolonization process, the functions and dysfunctions of intergroup conflict, and methods of reducing and increasing tension are discussed. (half course)

Sociology N-445 (443)

Intergroup Relations in Canada

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210, Sociology N-444. Within the theoretical framework of intergroup relations ethnic groups in Canada will be examined. The groups will include Indians, Eskimos, Blacks, Jews, English and French speakers. The mosaic theory of Canadian ethnic relations will be considered. (half course)

Sociology N-446 (444)

Social Class and Structured Inequality in Modern Society

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. Systems of social differentiation are analyzed. Theories about their origins and consequences, and about degrees and types of mobility related to them, are discussed. The theories are applied to Canada and to the United States as well as to other societies. (full course)

Sociology N-447 (427)

Political Sociology

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. The social and normative structures of political institutions, including political parties; the relationship between political institutions and religious and economic institutions; the rise and fall of political ideologies, systems and institutions; the making and communications of policies; the rejuvenation of elites. Political attitudes and

behaviour are analyzed, as well as political socialization, interest, and involvement. (full course)

Sociology N-448 (461)

Population and Society

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210, or an introductory course in a social science. This course consists of a brief survey of population theory and an introduction to the techniques of population analysis. It will cover the size, distribution, and composition of the population; changes in these characteristics; the relationship between population trends and social and economic conditions, with special reference to recent trends. (half course)

Sociology N-449 (462)

Area Studies in Demography

Prerequisite: One credit in Sociology at the CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210, Sociology N-448. Selected topics of importance in population studies will be explored in some detail. Students will be required to submit a research paper on a significant demographic problem. (half course)

NOTE: Students who have credit for Sociology N-453 or 462 may not take this course for credit.

Sociology N-450 (496)

Seminar in Urban and Metropolitan Studies

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210, Sociology N-441. Intensive study of a few theories and selected monographs dealing with aspects of urbanization. (full course)

Sociology N-452 (449)

Sociology of Law

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. A study of law as an institutionalized system of social control in diverse and changing structures of society. Examined are the problems of definition and validation, enforcement and execution of the law in various spheres of application in connection with different systems of stratified organization. Special attention is given to legal organization in contemporary society. (full course)

Sociology N-454 (465)

Industry and Society

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Analysis of the nature of change and its consequences in advanced industrialized societies.

Special attention will be directed toward corporate structures, the labour movement, the function and meaning of work, leisure, and changes in social stratification and the exercise of power. (full course)

Sociology N-455 (497)

Comparative Social Systems

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Comparative analysis of concepts of social systems with a special account of conflict theory and functionalist approaches to the subject. Examination of problems of development, modernization, and social change in a general theoretical framework. Comparative analysis of trends of development in the West, the Soviet Union and Eastern Europe, and the Third World Nations. (full course)

History-Sociology N-456 (493)

History and Sociology

Prerequisites: an introductory course in History and in Sociology, and second or third year standing. An exploration of the relationships between historical and sociological approaches to the description and analysis of social conditions and social events, paying special attention to questions of methodology and conceptualization. (full course)
NOTE: This course may be counted as a credit in either History or Sociology.

Sociology N-470 (406)

Canadian Social Structure

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. This course will focus on institutional patterns, with particular attention to the system of social stratification and industrial organization. Elements of differential structure, with special reference to Quebec society will be interpreted a) from the historical perspective of modernizing development, and (b) within the context of the North American system. (half course)

NOTE: Students who have credit for Sociology N-499 or 409 or 486 may not take this course for credit.

Sociology N-471 (407)

Quebec Society

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. The course focuses on the following topics: the nature of traditional society; social forces within Quebec society since the Second World War which brought about the quiet revolution; a critical examination of conflicting historical views on Quebec that are relevant in contemporary issues; the consequences of the conquest; the nature of confederation; and, the nature of nationalism and the

nation state. Special attention is paid to the language issue, both federally and within Quebec. (half course)

NOTE: Students who have credit for Sociology N-497 or 488 may not take this course for credit.

Sociology N-472

Social Structure of the Soviet Union and Eastern Europe

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. The process of modernization in Russia and Eastern Europe under the socialist order. Within this context, the socialist model will be considered as a variant of "late" modernization, against the background of the Western entrepreneurial experience. A comparative analysis of the Soviet and Yugoslav industrial organization will be approached in terms of (1) historical continuities within each system, and (2) general patterns of socialist industrialism. (half course)

Sociology N-481 (491)

Honours Seminar

Prerequisite: Open to honours students in their final year or by permission of the Department. Students engage in a critical study of major sociological work, according to their interests. Before the end of the academic year a research paper must be completed and accepted by the Department. (full course)

Sociology N-494 (486)

Special Seminar A

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (full course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. A student repeating Sociology N-494 for credit will register under Sociology N-496.

Sociology N-495 (487)

Special Seminar B

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for dis-

cussion and advanced study. (full course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time for credit under Sociology N-499.

Sociology N-496 (408)

Special Seminar

Prerequisite: One credit in Sociology at CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (full course)

NOTE: A student may take Sociology N-494 or N-495 twice for credit, provided that a different subject is dealt with the second time. He will register the second time for credit under Sociology N-496.

Sociology N-497 (488)

Special Seminar C

Prerequisite: One credit in Sociology at CEGEP level or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit.

Sociology N-498 (489)

Special Seminar D

Prerequisite: One credit in Sociology at the CEGEP level, or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time for credit under Sociology N-499.

Sociology N-499 (409)

Special Seminar

Prerequisite: One credit in Sociology at CEGEP

level, or Sociology 011 or 111 or 211 or 212 or N-210. Additional prerequisites may be added according to subject matter. Registration by permission of Department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (half course)

NOTE: A student may take Sociology N-497 or N-498 twice for credit, provided that a different subject is dealt with the second time. He will register the second time for credit under Sociology N-499.

ANTHROPOLOGY

Anthropology N-211 (211)

Introduction to Anthropology

This course deals with the evolution of man and his culture during prehistory, the differentiation of races, family and kinship structures in simple and complex societies, and the religious beliefs and practices of ancient and modern primitives in selected parts of the world. (full course)

NOTE: Only one full credit will be given students who pass Anthropology 011, 111 or 211 and Sociology 231.

NOTE: Students who have credit for Anthropology 011 or 111 may not take this course for credit.

Anthropology N-413 (441)

Problems in Anthropological Method

Prerequisites: Two credits in Anthropology.

Selected problems in Methodology, chosen by the instructor for advanced work with students. (half course)

Anthropology N-423 (432)

Cultural Anthropology

Prerequisite: One CEGEP credit in Anthropology, or Anthropology 011 or 111 or 211 or N-211.

Major theories of culture; survey of principal culture types and their distribution; analysis of relations between various aspects of culture such as technology, economy, family, and religion, with special attention to non-industrial societies; discussion of ethnological problems. (full course)

Anthropology N-425 (434)

Religious Systems

Prerequisite: One credit in Anthropology at CEGEP level or Anthropology 011 or 111 or 211 or Religion N-213. A comparative examination of various theories and outlooks on religious institutions, belief systems, ceremony and ritual in diverse contexts selected from primitive, peasant and industrial cultures, and including selections from previous historical periods. (full course)

Anthropology N-434 (451)

History and Theory of Anthropology

Prerequisites: Two credits in Anthropology. Major schools of anthropological theory, considered in the context of the history of anthropology. (full course)

Anthropology N-458 (435)

Peasantry; the Culture of Peasant Societies

Prerequisite: One credit in Anthropology at the CEGEP level, or Anthropology 011 or 111 or 211 or N-211, or Economics N-440. Analysis of social, economic and political organization of selected peasant societies in both New and Old World environments. Integration with selected problems of ideological, religious and artistic development within these cultures. (half course)

Anthropology N-460 (437)

Comparative Social Structure and Political Anthropology

Prerequisite: One credit in Anthropology at CEGEP level or Anthropology 011 or 111 or 211 or N-211. A survey of important problems of kinship, economic and political structure from selected tribal and peasant cultures. Stress will be placed on the empirical findings of field and library research. The second half of the course will deal with problems of political organization and leadership in the new nations of Africa and Asia. (full course)

Anthropology N-461 (461)

State Formation

Prerequisites: Two credits in Anthropology. A study of the formation of the earliest state societies in the Near East, East Asia, Middle and South America. The course will conclude with an analysis of 'secondary' states resulting from European intrusion into South Asia and Africa. (half course)

Anthropology N-462 (411)

American Indian

Prerequisite: One credit in Anthropology at CEGEP level or Anthropology 011 or 111 or 211 or N-211. The principles of general anthropology applied in a survey course on the American Indians. The advent of man to America; early cultural developments and the differentiation of the various groups or tribes; aboriginal culture areas of North America, including Eskimo; brief survey of Indian civilizations; present-day problems of Canadian and U.S. Indians and Eskimos. (full course)
NOTE: Students who have credit for Sociology 232 may not take this course for credit.

Anthropology N-463 (403)

Cultures of India and China

Prerequisite: At least two previous courses in

Anthropology and/or Sociology or permission of the instructor. This course will deal with the development of these cultures from their earliest manifestation to the present. Emphasis will be upon the interrelations of techno-economic, social structural and ideological aspects, with considerable attention to recent and prospective changes. (full course)

NOTE: Students who have credit for Anthropology N-494 or 486 in 1971-72 may not take this course for credit.

Anthropology N-494 (486)

Special Seminar

Prerequisites: At least two credits in Anthropology or permission of the Department. Additional prerequisites may be added according to subject matter. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (full course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time for credit under Anthropology N-495.

Anthropology N-495 (487)

Special Seminar

Prerequisite: Permission of the Department. Additional prerequisites may be added according to subject matter. A student repeating Anthropology N-494 for a second time registers for credit under Anthropology N-495. (full course)

Anthropology N-497 (488)

Special Seminar

Prerequisites: At least two credits in Anthropology or permission of the Department. Additional prerequisites may be added according to subject matter. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (half course)

NOTE: With the permission of the Department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time for credit under Anthropology N-498.

Anthropology N-498 (489)

Special Seminar

Prerequisite: Permission of the Department. Additional prerequisites may be added according to subject matter. A student repeating Anthropology

N-497 for a second time registers for credit under Anthropology N-498. (half course)

Cognate Courses

Archaeology N-212

Introduction to Archaeology II (Area IV)

Linguistics N-221

Introduction to Linguistics (Area IV)

Philosophy N-376

Philosophy of the Social Sciences (Area I)

Education N-421

Sociology of Education (Area IV)

Faculty of Science

Dean

John R. Ufford

Assistant Dean

Frederick Bedford

Curriculum for the Degree of Bachelor of Science

Admission Requirements

General Admission requirements are listed on page 34.

Specific requirements are those contained in the CEGEP pre-Science profile or the equivalent in university collegial programs, that is:

Sir George Williams University	CEGEP
Biology 001.....	301
Chemistry 001.....	101
002.....	201
Mathematics 002.....	101
003.....	103
004.....	105
005.....	203
Physics 001.....	101
002.....	201
003.....	301

In 1973-4 the majority of students entering first year of the Science undergraduate program will be graduates of the Sir George Williams Collegial program. Consequently, prerequisites, where listed, are given Sir George Williams numbers. Biology 002 is the equivalent of CEGEP Biology 401.

Degree Requirements

The Bachelor of Science degree will require a total of 15 full-course equivalents or the equivalent. Ten of these must be taken from the courses listed as courses offered in the Faculty of Science in the university announcement.

Students are required to indicate in their application the choice of a general, major, joint major or honours program.

A major program will consist of a minimum of seven and a maximum of ten specified full courses or their equivalent.

An honours program will consist of a minimum of ten specified full courses or their equivalent.

Joint Major Programs

A "joint major" is made up of two approved se-

* half course

quences of five courses in two specific fields. The term "joint major" implies that a student has followed, within the requirements for the degree, a planned program of study in two specialized fields, with a lower degree of concentration in either than in a major program.

Students wishing to follow a joint major within the Faculty of Science must obtain approval of the sequence of five courses from each department concerned.

Interdiscipline joint majors between faculties may be arranged with those departments offering a joint major component (*cf pg. 48-50 of this announcement*) in order to meet the needs of individual students.

Major Programs

A major is an approved sequence of courses in a specific field which may include certain approved courses in other closely related subjects. The term major as used by Sir George Williams University implies that a student has followed, within the requirements for the degree, a planned program in a specialized field.

Students registering upon entry in a joint major or major program must, in the course of their first year, establish an approved sequence of courses for their degree program through consultation with the chairman of the department concerned or his representative.

Requirements for Majors

Analytical Chemistry

The following courses, in an approved sequence, constitute a major in Analytical Chemistry:

First Year: Chemistry N-211*, N-213*, N-231, N-241, Computer Science N-211* and N-221*.

Second Year: Chemistry N-311*, N-353, one additional full-course elective in Chemistry; Computer Science N-301*, N-310*.

Third Year: Chemistry N-451, N-491. Computer Science N-302*.

NOTE: Students who major in Analytical Chemistry are exempted from the co-requisite Computer Science N-220* for N-310*.

Biochemistry

The following courses, in an approved sequence, constitute a major in Biochemistry:

First Year: Chemistry N-211*, N-213*, N-231, N-241 and one full-course equivalent in Biological Sciences.

Second Year: Chemistry N-331 or N-341, N-351, N-371 and one full-course equivalent in Biological Sciences.

Third Year: Chemistry N-471 or N-472 and one full-course equivalent in Biological Sciences, Biophysics, Chemistry or Psychology listed under Science Faculty.

Biological Sciences

The following courses, in an approved sequence, constitute a major in Biological Sciences:

First Year: Biology N-224*, N-213* and Chemistry N-231.

Second Year: Biology N-343*, N-344*, Zoology N-320* or both Botany N-320* and N-360*.

Third Year: Biology N-380* and N-381* (Biology N-380* or N-381* and N-380* may be taken in second year).

In addition four full-course equivalents taken in the Department of Biological Sciences or in another related field chosen in consultation with the Department. Students who choose Zoology N-320 in second year must take Zoology N-211 in the first year.

NOTE: Students who choose Chemistry N-371 as an elective are reminded that Chemistry N-231, Chemistry N-241 and Chemistry N-211 are prerequisites. However, a student may be exempted from Chemistry N-211.

Chemistry

The following courses, in an approved sequence, constitute a major in Chemistry:

First Year: Chemistry N-211*, N-213*, N-221, N-231, N-241.

Second and Third Years: Chemistry N-311*, N-331, N-341, N-353 and two full-course equivalents in Chemistry.

General Science

Ten full courses or equivalent taken from the courses listed in the Faculty of Science.

Geology

The following courses, in an approved sequence, constitute a major in Geology:

First Year: Geology N-213*, N-214*, N-231*, N-232* and Chemistry N-241.

Second Year: Geology N-322*, N-323*, N-342, N-348*, N-349*, N-352*, N-353*.

Third Year: Geology N-460, one additional full course in Geology or the equivalent.

It is advisable that geology students do at least one summer of field work with government geological field parties or with private exploration companies.

Mathematics

The following courses, in an approved sequence, constitute a major in Mathematics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-361, N-391*, and two and one-half additional full-course equivalents in Mathematics, or the equivalent, approved by the Department.

Students who major in Mathematics must register annually with the Department of Mathematics, by November 1.

Applied Mathematics (Optimization)

The following courses, in an approved sequence, constitute a major in Applied Mathematics (Optimization):

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-312*, N-331, N-351*, N-431 and one other full-course equivalent in Mathematics or related field approved by the Department.

Students who major in Applied Mathematics must register annually with the Department of Mathematics, by November 1.

Statistics

The following courses, in an approved sequence, constitute a major in Statistics:

Mathematics N-241, N-261, N-271*, N-281, N-291*, N-341*, N-342*, N-343*, N-351*, N-352*; one and one-half other full-course equivalents in Mathematics or related fields approved by the Department.

Students who major in Statistics must register annually with the Department of Mathematics, by November 1.

Psychology (Bachelor of Science)

First Year: Psychology N-271 or N-273.

In addition either Zoology N-211 and Chemistry N-231; or, two full credits from Mathematics N-241, Mathematics N-281, Computer Science N-211*, Computer Science N-212*.

First or Second Year: Psychology N-412.

Second and Third Years: Five full-course equivalents selected from Psychology N-421, N-422, N-432, N-461, N-241 or N-242, N-275*, N-413, N-428, N-434, N-438, N-442, N-452, N-454, N-462, N-471, N-481, N-491*, N-492*, N-493*, N-494*.

This option must include at least one of the first four listed.

* half course

The Psychology courses listed on page 146 of this announcement are acceptable as science credits in the Bachelor of Science degree. The course descriptions can be found in the Faculty of Arts section.

Experimental Physics

The following courses, in an approved sequence, constitute a major in Experimental Physics:

First Year: Physics N-242, N-252; Mathematics N-261, N-270.

Second Year: Physics N-345, N-353*, N-354, N-365*; Mathematics N-311*.

Third Year: Physics N-434*, N-435*, N-466*, N-496.

Theoretical Physics

The following courses, in an approved sequence, constitute a major in Theoretical Physics:

First Year: Physics N-242, N-252, Mathematics N-261, N-270, N-281.

Second Year: Physics N-336, N-345, N-365*, Mathematics N-366*.

Third Year: Physics N-477* and one and one-half additional full-course equivalents chosen from among Physics N-434*, N-435*, N-457, N-466*, N-467*, N-478*.

Honours Programs

An honours degree indicates specialization within a field and high academic standing. In order to qualify for an honours degree a student must meet all the academic qualifications and comply with the regulations set forth below.

1. A candidate for an honours degree should indicate such intention at registration, and consult the honours representative of the department(s) concerned as soon as possible. His honours standing will be reviewed annually. However, a student who has followed the courses prescribed for the honours program, and has met all the requirements, may enter the program with the approval of the department chairman at any time before beginning the final five courses. No retroactive approval of entry may be granted.

2. An honours student must meet the general degree requirements as well as the specific requirements for an honours degree, and must obtain at least a 'C' average over the total degree program. Failure in any course will mean suspension from the honours program. Reinstatement

is possible only by recommendation by the honours representative.

3. An honours student must obtain a 'B' average with no grade lower than 'C' in all courses in the basic honours program.

4. A student who enters with advanced standing may apply pro tanto credits, which are applicable, to the honours degree requirements, upon approval by the department.

5. A student shall be allowed to qualify for only one honours degree.

6. Honours standing in any program is granted upon graduation only with the approval of the University Council.

Honours Committee

<i>Chairman</i>	R. Westbury
R. Angel	J.P. Zweig
B. Markland	<i>Secretary</i>
B. Slack	Mona Osborne

Department Representatives

Biological Sciences

Frank Abbott

Chemistry

Ronald A. Westbury

Mathematics

Norman Smith

Physics

Ramesh Sharma

Requirements for Honours

Biological Sciences

The following courses constitute an honours program in Biological Sciences, provided the student maintains the required academic standing:

Cell and Molecular Biology Option

First Year: Biology N-224*, N-213*; Chemistry N-231 and N-241.

Second Year: Biology N-343*, N-344*; Zoology N-320 or both Botany N-320* and Botany N-360*; Chemistry N-371.

Third Year: Biology N-445*, N-446*, N-490, N-433*, N-380*, N-381*. (Biology N-380* or N-380* and N-381* may be taken in second year.)

In addition three and one-half full-course equivalents in Biological Sciences or related fields chosen in consultation with the Department of Biological Sciences. Students who choose Zoology N-320 in second year must take Zoology N-211 in the first year.

* half course

Ecology Option

First Year: Biology N-224*, N-213*; Chemistry N-231; Botany N-210*.

Second Year: Zoology N-320 or Botany N-320* and N-360*; Botany N-312 or Zoology N-316; Biology N-343*, N-344*.

Third Year: Botany N-312 or Zoology N-316; Biology N-490, N-380*, N-381*. (Biology N-380* and N-381* may be taken in the second year.)

In addition five and one-half credits in Biological Sciences or related fields chosen in consultation with the Department of Biological Sciences. Students who choose Zoology N-320 in second year must take Zoology N-211 in first year.

Physiology and Developmental Biology Option

First Year: Biology N-224*, N-213*; Chemistry N-231.

Second Year: Zoology N-320 or Botany N-320* and N-360*; Biology N-343*, N-344*.

Third Year: Zoology N-360 or Botany N-421* and N-461*; Botany N-422 or Chemistry N-371; Biology N-490, N-380*, N-381*. (Biology N-380* or Biology N-380* and N-381* may be taken in second year.)

In addition five full-course equivalents from the field of Biological Sciences or related fields chosen in consultation with the Department of Biological Sciences. Students who choose Zoology N-320 in second year must take Zoology N-211 in first year.

NOTE: Students who choose Chemistry N-371 are reminded that Chemistry N-231, Chemistry N-241 and Chemistry N-211 are prerequisites. However, a student may be exempted from Chemistry N-211.

Chemistry

The following courses constitute an honours program in Chemistry, provided the student maintains the required academic standing:

First Year: Chemistry N-211*, N-213*, N-221, N-231, N-241; Mathematics N-270.

Second Year: Chemistry N-311*, N-321, N-331, N-341, N-353.

Third Year: Chemistry N-431, N-441, N-451, N-461, N-491.

Mathematics

The following courses constitute an honours program in Mathematics, provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-361, N-366*, N-371*, N-381*, N-391*, and one other full-course equivalent, or equivalent approved by the Department from among: Mathematics N-311*, N-312*, N-321*, N-322*, N-331, N-351*, N-392*.

Third Year: Mathematics N-461, N-466*, N-467*, N-491*, N-492* and one other full-course equivalent, or equivalent approved by the Department from among: Mathematics N-431, N-432*, N-451*, N-471*, N-475* and second year options not taken previously.

NOTE: Students with a strong interest in operations research may receive departmental permission to take Mathematics N-312*, N-331, N-351* as their options and to replace Mathematics N-467* and N-492* with Mathematics N-431, and N-491* with N-432*.

Statistics

The following courses constitute an honours program in Statistics provided the student maintains the required academic standing:

First Year: Mathematics N-241, N-261, N-271*, N-281, N-291*.

Second Year: Mathematics N-351*, N-352*, N-361, N-366*, N-381*, N-391*, and one half course approved by the Department from among: Mathematics N-311*, N-312*, N-321*, N-341*, N-342*, N-343*.

Third Year: Mathematics N-371*, N-451*, N-452*, N-461, N-466*, and one full credit or equivalent approved by the Department from among: Mathematics N-331, N-431, N-441*, N-467*, N-471*, N-491*, N-492* and second year options not taken previously.

NOTE: Students with a strong interest in operations research may receive departmental permission to take Mathematics N-312*, N-331 as their options and to replace either Mathematics N-371* and N-466* or N-461 with Mathematics N-431.

Physics

The following courses constitute an honours program in Physics, providing the student maintains the required academic standing:

First Year: Physics N-242, N-252; Mathematics N-261, N-270, N-281.

Second Year: Physics N-336, N-345, N-353*, N-354, N-365*; Mathematics N-311*, N-366*.

Third Year: Physics N-434*, N-435*, N-457, N-466*, N-467*, N-477*, N-478*, N-496.

Psychology (Bachelor of Science)

First Year: Psychology N-241 or N-242, N-273 (see NOTE), N-412.

* half course

Second Year: Three courses chosen from Psychology N-421, N-422, N-432, N-434, N-438, N-442, N-461. In addition N-275* may be taken as an option.

Third Year: Psychology N-413, N-472; one full-course credit selected from Psychology N-421, N-422, N-428, N-432, N-434, N-442, N-454, N-452, N-461, N-462, N-481, N-482, N-491*, N-492*, N-493*, N-494*.

NOTE: Students who have taken Psychology N-271 in first year and are then admitted to the honours program will be exempt from Psychology N-273 but may be required to take Psychology N-471 in second year.

In addition:
Biology Option

First Year: Zoology N-211; Chemistry N-231.

Second Year: Biology N-224.

Third Year: Zoology N-320.

Mathematics Option

Mathematics N-241, N-281.

Two additional full-course credits from among Mathematics N-261, N-270, N-341*, N-343*, N-351*, N-352*, Computer Science N-211*, N-212*.

The Psychology courses listed on page 146 of this announcement are acceptable as science credits in the Bachelor of Science degree. The course descriptions can be found in the Faculty of Arts section.

BIOLOGICAL SCIENCES

*Associate Professor and
Chairman of the Department*

Gerard Leduc

Professor

Donald L. Peets

Associate Professors

F.S. Abbott

Hildegard E. Enesco

R.K. Ibrahim

C.F. MacLeod

Assistant Professors

Perry D. Anderson

S.S. Ashtakala

Ernst Bleichert

Ruth L. Lowther

Robert H. McLaughlin

Elaine B.S. Newman

Robert Roy

Visiting Assistant Professor

Sylvia M. Ruby

BIOLOGY

Biology N-201 (251)

General Biology I

A survey of basic principles of Biology: chemical basis of life, cell organization and control; elements of anatomy, physiology, morphogenesis, heredity and evolution. Lectures and laboratory. (half course)

NOTE: Students who have credit for Biology 001, Botany 211 and/or Zoology 222 may not take this course for credit.

Biology N-202 (252)

General Biology II

Prerequisite: Biology 001 or the equivalent. Comparative anatomy and physiology, genetics, embryology and cellular metabolism. Elements of ecology and field biology. Lectures and laboratory. (half course)

NOTE: Students who have credit for Biology 002, Botany 211 and/or Zoology 222 may not take this course for credit.

Biology N-213 (453)

Fundamentals of Ecology

Prerequisite: Biology 002 or N-202, previously or concurrently. A study of the great climatic regions of the world and the adaptation of plants and animals to their environments. Lectures only. (half course)

NOTE: Students who have credit for Botany 416 or Zoology 451 may not take this course for credit.

Biology N-224 (444)

Cell Physiology

Prerequisites: Biology 002 or N-202, previously or concurrently, Chemistry N-231 previously or concurrently. Physics 001, 002, and 003 or the equivalent. The study of plant and animal cellular organelles and their functions. Lectures and laboratory. (half course)

Biology N-241 (241)

Genetics and Human Welfare

A course on the principles of heredity as understood by modern biology. It deals also with the application of genetic principles to organisms including man. The biological basis of social prob-

* half course

lems is dealt with at some length. Organic evolution and its implications for human life and welfare are considered. Lectures only. (full course)

Biology N-250 (Botany 414)

Biology of Fungi, Bacteria and Viruses

Prerequisite: Biology 002 or N-202, previously or concurrently. A survey of the fungi, bacteria and viruses. Their functional activities, morphology, distribution, evolution and classification are considered. Lectures and laboratory. (full course)

Biology N-314 (454)

Fundamentals of Limnology

Prerequisite: Biology N-213 previously or concurrently. Geographical, physical and chemical characteristics of lakes and streams in relation to productivity. Lectures only. (half course)

NOTE: Students who have credit for Biology 452 may not take this course for credit.

Biology N-342 (442)

Genetics

This course is no longer offered.

It is replaced by Biology N-343 (445), and N-344 (446).

Biology N-343 (445)

Genetics I

Prerequisites: Biology 002 or N-202, Chemistry N-231. A course to illustrate the fundamental principles of inheritance in plants, animals and microorganisms. Mendelian genetics, gene linkage and mutation will be covered. The role of DNA as the hereditary material and genetic code will be studied in detail, as will the mechanisms of DNA, RNA and protein synthesis. Lectures and laboratory. (half course)

NOTE: Students who have credit for Biology N-342 (442) may not take this course for credit.

Biology N-344 (446)

Genetics II

Prerequisite: Biology N-343. The course is designed as a continuation of Biology N-343. It will cover cytogenetics, developmental genetics, medical genetics and introductory bacterial genetics. Lectures and laboratory. (half course)

NOTE: Students who have credit for Biology N-342 (442) may not take this course for credit.

Biology N-371 (481)

History of Biology

Prerequisites: Any two courses from the Department of Biological Sciences. A course following the growth of Biological Sciences. Lectures only. (full course)

* half course

Biology N-380 (482)

Biostatistics I

Prerequisite: 2nd or 3rd year standing. Application of statistical methods to biological data. Descriptive statistics. Binomial, Poisson and Normal distributions. Confidence limits. Tests of significance. Introduction to analysis of variance, correlation and regression. Analysis of frequencies. Lectures and laboratory. (half course)

NOTE: Students who have credit for Biology 230 may not take this course for credit.

Biology N-381 (483)

Biostatistics II

Prerequisite: Biology N-380. Sampling methods. Analysis of variance and experimental design. Regression and correlation techniques. Bioassay. Non-parametric statistics. Analytical methods in field biology genetics and microbiology. Lectures and laboratory. (half course)

Biology N-415 (455)

Biological Limnology

Prerequisites: Biology N-314, Zoology N-315, Zoology N-210 or Botany N-212. Ecology of freshwaters, primary and secondary productivity in lakes and streams. Biological aspects of water pollution. Lectures, field work (two weeks at the end of the summer preceeding the course) and laboratory. (full course)

NOTE: Students who have credit for Biology 452 may not take this course for credit.

Biology N-432 (472)

Histological Technique

Prerequisites: Botany N-230 or Zoology N-330, previously or concurrently, and permission of the instructor. A project course in which each student is assigned a topic for investigation. Each study will involve various preparations of plant or animal tissues for microscopic study and some practical experience in photomicrography. Lectures and laboratory. (full course)

NOTE: Students who have credit for Biology 271 may not take this course for credit.

Biology N-433 (443)

Cytology

Prerequisites: Biology N-202 and Chemistry N-231. An introduction to cell structure of both plants and animals, with special reference to genetics and emphasis on the experimental and molecular aspects. Lectures and laboratory. (half course)

Biology N-434

Introductory Radiation Biology and Radiotracer Methodology

Prerequisite: Permission of the Department. A

survey of the elements of radiation physics with emphasis on the properties of ionizing radiation and its interaction with matter including dosimetry and methods of radiation counting. The effects of radiation at the macromolecular, cellular and organismal level will be considered from both the somatic and genetic points of view. Lectures and laboratory. (half course)

Biology N-435

Advanced Topics in Radiation Biology and Radiotracer Methodology

Prerequisite: Biology N-434. A detailed study of selected topics in dosimetry, scintillation spectrometry, cell kinetics, target theory, radiation botany and mammalian radiobiology. Lectures, laboratory and a visit to a major radiation lab or reactor. (half course)

Biology N-445

Biological Regulatory Mechanism

Prerequisites: Chemistry N-371, Biology N-342 or Biology N-343, N-344. Metabolic pathways with an emphasis on their control and coordination; intercellular messengers in developmental and adult systems. Lectures and conference. (half course)

Biology N-446

Molecular Genetics

Prerequisites: Chemistry N-371, Biology N-342, or Biology N-343, N-344. Basic microbial and molecular genetics including mechanisms of gene transfer, mutation and recombination. Use of genetics in the study of regulation of gene expression, the code and mechanisms in protein synthesis; bacteriophage genetics; episomes. Lectures and conference. (half course)

Biology N-490 (491)

Special Study

Prerequisite: 3rd year standing and permission from the Chairman of the Department or his representative. In this course, the student undertakes a special research project to develop his knowledge of scientific procedures as used by biologists. The project may include only library research or both library and experimental research. (full course)

BOTANY

Botany N-210 (430)

Eastern North American Flora

Prerequisite: Biology 002 or N-202, previously or concurrently. A study of higher plant life occurring in Eastern North America, including their recognition, collection, identification, classification and distribution. Field work for practical experience

* half course

with the regional flora in various habitat. Lectures and laboratory. (half course)

NOTE: Students who have credit for Botany 411 may not take this course for credit.

Botany N-212 (415)

Biology of the Non-Vascular Green Plants

This course is no longer offered.

It is replaced by Botany N-215 (434) and Botany N-216 (435).

Botany N-213 (421)

Economic Botany

Prerequisite: Biology N-213. Origin, development and use of economic plants. Their role in civilization with particular emphasis on the actual problems of food and alimentation. Notions of agricultural ecology. Lectures only. (half course)

Botany N-215 (434)

Biology of the Fresh-water Algae and Lichens

Prerequisite: Biology 002 or N-202 previously or concurrently. A survey of the organisms including distribution, classification, morphology, anatomy, cytology and functional activities. Lectures include information on their importance in food chains, in cycling of elements in nature, their use as indicators of pollution, their use as research tools, as well as unique substances produced by them. Laboratories are experimental and descriptive. No text required. (half course)

NOTE: Students who have taken Botany N-212 (415) may not take this course for credit.

Botany N-216 (435)

Biology of the Marine Algae and Mosses

Prerequisite: Biology 002 or N-202 previously or concurrently. A survey of the organisms including distribution, classification, morphology, anatomy, cytology and functional activities. Lectures include information on their importance in food chains, in cycling of elements in nature, their use as indicators of pollution, their use as research tools, as well as the unique substances produced by them which make them economically important. Laboratories mostly descriptive. No text required. (half course)

NOTE: Students who have taken Botany N-212 (415) may not take this course for credit.

Botany N-230 (412)

Plant Anatomy

Prerequisite: Biology N-202 or 002 or equivalent previously or concurrently. The internal anatomy and phylogenetic development of structure in vascular plants. Includes developmental, pathological and ecological aspects of anatomy and paleo-anatomy. Laboratory work includes preparation of

plant material for microscopic study. Lectures and laboratory. (full course)

Botany N-310 (420)

Plant Ecology

NOTE: *This course is no longer offered.*

Botany N-311

Taxonomy of Higher Plants

Prerequisite: Botany N-210 previously or concurrently. Principles of classification, survey of the major families of gymnosperms and flowering plants, morphology and evolution. Research methods in taxonomy. Lectures, field-work and laboratory. (half course)

NOTE: Students who have credit for Botany 411 may not take this course for credit.

Botany N-312 (422)

Plant Ecology

Prerequisites: Botany N-210; Biology N-213; Biology N-380 previously or concurrently. Dynamic effects of physical and biotic factors on vegetation: succession, climax and influence of man. Elements of experimental ecology and field biology from the autecological to the phytogeographical level. Lectures, field work (one week at the end of the summer preceding the course) and laboratory. (full course)

NOTE: Students who have credit for Botany N-310 may not take this course for credit.

Botany N-320 (431)

Plant Metabolism

Prerequisites: Biology N-224, Chemistry N-231. A comprehensive study of the metabolic activities of higher plants. Topics include mineral nutrition, photosynthesis, respiration, carbohydrate, fat and nitrogen metabolism. Metabolic processes are discussed in relation to structure at various levels of organization and in response to environmental factors. Some aspects of energy transformations and energy flow are discussed. Lectures and laboratory. (half course)

NOTE: Students who have Botany 413 may not take this course for credit.

Botany N-360 (432)

Plant Growth

Prerequisite: Botany N-320 previously or concurrently. A physiological and biochemical study of growth regulators, their mechanism of action and their role in plant growth and metabolism. Lectures and laboratory. (half course)

NOTE: Students who have credit for Botany 413 may not take this course for credit

Botany N-421

Advanced Plant Physiology

Prerequisite: Botany N-320. A modern approach to understanding of the metabolic process in relation to organelle structure, energy conservation, enzyme activities and metabolic regulations. Lectures and laboratory. (half course)

Botany N-422 (418)

Plant Biochemistry

Prerequisites: Biology 002 or N-202 and Chemistry N-231. Biochemical study of the common natural plant constituents including secondary metabolites, their biosynthesis and role in plant metabolism. Lectures and laboratory. (full course)

Botany N-461 (417)

Plant Morphogenesis

Prerequisites: Botany N-320 and N-360. A discussion of plant regulatory mechanisms and the control of growth and morphogenesis. The use of plant tissue culture techniques in metabolic and morphogenetic studies. Lectures, seminars and laboratory. (half course)

ZOOLOGY

Zoology N-210 (421)

Invertebrate Zoology

Prerequisite: Biology 002 or N-202, previously or concurrently. A study of the animal kingdom (excluding the vertebrata), from the point of view of evolution and adaptive radiation with the object of understanding the several phyla, their organization and diversity, aspects of functional morphology, embryology, life-history, ecology and systematics. There will be emphasis on the importance of the invertebrates to human life and welfare. Lectures and laboratory. (full course)

Zoology N-211 (422)

Chordate Anatomy

Prerequisite: Biology 002 or N-202, previously or concurrently. The comparative anatomy of chordate animals, their reproduction, development, distribution and evolution. In the laboratory, representatives of the principal vertebrates classes are dissected. Lectures and laboratory. (full course)

Zoology N-213 (424)

Parasitology

Prerequisite: Biology 002 or N-202, previously or concurrently. A survey of the parasitic groups of invertebrates with special reference to the parasites of man. Lectures and laboratory. (half course)

Zoology N-214 (425)**Entomology**

Prerequisite: Biology 002 or N-202, previously or concurrently. An introduction to the study of insects, their morphology, taxonomy, physiology and ecology. Lectures and laboratory. (half course)

Zoology N-315 (452)**Animal Ecology**

This course is no longer offered.

Zoology N-316 (453)**Animal Ecology**

Prerequisites: Botany N-210; Biology N-213; Biology N-380 previously or concurrently. A study of the factors influencing animal populations, regulation, migrations and exploitation by man. Lectures, field work (one week at the end of the summer preceding the course) and laboratory. (full course)

NOTE: Students who have credit for Zoology N-315 may not take this course for credit.

Zoology N-320 (431)**Animal Physiology**

Prerequisites: Physics 211 or equivalent; Chemistry N-231; a grade C or better in Biology N-224 and Zoology N-211. A study of comparative animal physiology at the systems level. Lectures and laboratory. (full course)

Zoology N-330 (471)**Comparative Vertebrate Histology**

Prerequisite: Zoology N-211. A comparative study

of the microscopic characteristics of cells, tissues and organs of the vertebrates. Lectures and laboratory. (full course)

Zoology N-360 (461)**Vertebrate Embryology**

Prerequisite: Zoology N-211. The fundamental processes of growth and development in the vertebrates. A comparative study is made of selected vertebrate species with emphasis on the experimental and molecular aspects. Lectures and laboratory. (full course)

Zoology N-412 (423)**Advanced Vertebrate Ecology**

Prerequisites: Zoology N-211 and N-315. A study of taxonomy, distribution and population phenomena using vertebrate examples. Emphasis will be on mammals and birds. Seminars and term-papers based on a study of recent literature will form an important part of the course. Lectures, seminars and laboratory. (full course)

Zoology N-421 (432)**Advanced Animal Physiology**

Prerequisites: Zoology N-210 and N-320, Biology N-213 previously or concurrently, permission of the instructor. Lectures and seminars dealing with selected topics in environmental and comparative physiology. Project type laboratory studies will include vertebrate and invertebrate representatives. Lectures and laboratory. (full course)

CHEMISTRY

*Professor and Chairman
of the Department*

Roger H. C. Verschingel

*Professor and Vice-Chairman
of the Department*

James G. Dick

Professor and Dean

John Russell Ufford

Associate Professors

Thomas J. Adley

George Campbell

Lawrence D. Colebrook

Zacharias Hamlet

Jacques Lenoir

Robin T. B. Rye

Roderick E. Townshend

Ronald A. Westbury

Assistant Professors

Peter C. Bird

Nick Serpone

Oswald S. Tee

Chemistry N-211 (412)**Introductory Quantitative Analysis**

Prerequisites: Chemistry 002; Physics 003; Mathematics 003 and 005; or equivalent courses. Chemical equilibrium as applied to volumetric and gravimetric procedures; general theory of volumetric titrations; titration curves; application of general titration theory to neutralization, precipitation, complexation, oxidation-reduction and

non-aqueous solvent titrations; theory of potentiometry and potentiometric titrations; theory of gravimetric analysis; methods of separation by chemical and physical means; electrogravimetry and electrolytic separations; absorptimetric theory and absorptimetric methods of analysis. Lectures and laboratory. (half course)
Textbook: Dick: *Analytical Chemistry* (McGraw-Hill).

Chemistry N-213 (413)

Statistical Treatment of Chemical Data

Prerequisites: Chemistry 002; Physics 003; Mathematics 003 and 005; or equivalent courses. The statistical treatment of chemical data including: observations and measurements; error and accuracy; significant figures, expression of results; probability theory, normal and Poisson error distributions; precision; measures of spread; propagation of errors; rejection of observations; statistical analysis; graphical analysis; straight line law; nonlinear laws; method of least squares; accuracy of values derived from graphs; literature data, primary and secondary sources; use of chemical literature indices. Lectures only. (half course)

Textbook: *A Statistical Manual for Chemists* (Academic Press).

Chemistry N-221 (411)

Introductory Inorganic Chemistry

Prerequisites: Chemistry 002; Physics 003; Mathematics 003 and 005; or equivalent courses. Introduction to structural and descriptive inorganic chemistry including: the chemical properties of atoms; properties of ionic compounds; bonding in covalent compounds; spectroscopic methods of determining atomic and molecular structure; x-ray crystallography; the periodic properties of the elements and their relationship to descriptive inorganic chemistry; introduction to transition metal chemistry. Lectures and laboratory. (full course)

Textbook: Mackay and Mackay: *Introduction to Modern Inorganic Chemistry* (Intertext).

Chemistry N-231 (421)

Introductory Organic Chemistry

Prerequisite: Chemistry 002 or an equivalent course. Chemistry of aliphatic and aromatic compounds; structural isomerism; stereoisomerism; mechanisms; electronic theories and stereochemistry of organic reactions; applications of spectroscopy to organic chemistry. Lectures and laboratory. (full course)

Textbook: Morrison and Boyd: *Organic Chemistry* (Allyn and Bacon, 2nd edition).

Chemistry N-241 (431)

Introductory Physical Chemistry

Prerequisites: Chemistry 002; Physics 003; Mathematics 003 and 005; or equivalent courses. Real gases; kinetic molecular theory; equilibrium thermodynamics (first, second and third laws); electrochemical cells and the Nernst equation; applications of thermodynamics to one-component, two-component and three-component systems; chemical kinetics; ions in solution; radiation

chemistry. Lectures only. (full course)

Textbook: Barrow: *Physical Chemistry* (McGraw-Hill, 2nd edition).

Chemistry N-281 (461)

Industrial Inorganic Chemistry

Prerequisite: Chemistry 002 or an equivalent course. Study of industrial inorganic processes including: mineral acids; alkalies; synthetic ammonia; fertilizers; cements; ceramics; glass; electrothermal products; electrometallurgy; water treatment. This course is not applicable towards a major in Chemistry. Lectures only. (half course)

Textbook: Shreve: *Chemical Process Industries* (McGraw-Hill, 3rd edition).

Chemistry N-301 (401)

Chemical Pedagogy

Prerequisites: Chemistry 002 or an equivalent course; one full laboratory course at university level. The methodology of teaching chemistry at various levels including: the objectives of chemical education; the presentation of chemical concepts; the communication skills; the mathematical skills; the editing of a course and its lectures; the philosophy of laboratory procedure; the examination; the textbook; planning and budgeting; visual aids. Lectures only. (full course)

Chemistry N-311 (417)

Advanced Quantitative Analysis

Prerequisites: Chemistry N-211, N-213, N-221; Chemistry N-353 or N-351 previously or concurrently. The theory and application of instrumental methods of analysis to quantitative chemistry including: coulometry; coulometric titrations; conductometry; conductometric titrations; voltammetry and polarography; amperometric titrations; chronopotentiometry and chronoamperometry; spectrophotometry; spectrophotometric titrations; nephelometry, turbidimetry and fluorometry; flame photometry; atomic absorption spectroscopy; emission spectroscopy; x-ray absorption and emission (fluorescence) spectroscopy. Lectures and laboratory. (half course)

Textbooks: Dick: *Analytical Chemistry* (McGraw-Hill); Willard, Merritt and Dean; *Instrumental Methods of Analysis* (Van Nostrand).

Chemistry N-321 (415)

Advanced Inorganic Chemistry

Prerequisites: Chemistry N-211, N-221; Chemistry N-341 and N-353 previously or concurrently. Group theory and its application to chemical systems; chemical bonding on a quantitative level; magnetochemistry; ligand field theory, correlation diagrams, electronic spectra; stereochemistry, stability of complex ions in solution;

reaction mechanisms of coordination compounds; descriptive chemistry of the transition elements.

Lectures and laboratory. (full course)

Textbooks: Kettle: *Coordination Compounds*

(Appleton-Century-Crofts); Angelici: *Synthesis and Technique in Inorganic Chemistry* (Saunders);

Hatfield and Palmer: *Problems in Structural*

Inorganic Chemistry (Benjamin); Cotton: *Chemical Applications of Group Theory* (Interscience, 2nd

Edition); Sands: *Introduction to Crystallography*

(Benjamin).

Chemistry N-331 (427)

Intermediate Organic Chemistry

Prerequisites: Chemistry N-231, N-241; Chemistry N-353 previously or concurrently. Amplification of concepts presented in introductory organic chemistry; reaction mechanisms; catalysis; conformational analysis and stereochemistry. Laboratory includes qualitative analysis of compounds and mixtures by spectroscopic techniques; small scale preparations; selected experiments in physical organic chemistry. Lectures and laboratory.

(full course)

Textbook: March: *Advanced Organic Chemistry: Reactions, Mechanisms and Structure* (McGraw-Hill).

Chemistry N-336 (471)

Natural Products I

Prerequisite: Chemistry N-231. Structures, stereochemistry and reactions of carbohydrates; synthesis, stereochemistry and physicochemical properties of amino-acids; determination of amino acid sequences; synthetic methods; conformations of polypeptides and proteins. Lectures only. (half course)

Textbooks: Guthrie and Honeyman: *Introduction to the Chemistry of Carbohydrates* (Oxford, 3rd edition); Kopple: *Peptides and Amino Acids* (Benjamin).

Chemistry N-337 (473)

Natural Products II

Prerequisite: Chemistry N-231. The synthesis, stereochemistry and structure determination of lipids (triglycerides, phospholipids, sphingolipids and sterols); steroid hormones; antibiotics; nucleotides. Lectures only. (half course)

Textbooks: Ulbricht: *Purines, Pyrimidines and Nucleotides and the Chemistry of Nucleic Acids* (Pergamon); Yates, *Structure Determination* (Benjamin).

Chemistry N-338 (472)

Chemistry of High Polymers I

Prerequisites: Chemistry N-231, N-241. Methods and mechanisms of polymer preparation; condensation polymerization; addition polymerization; ring opening reactions; vinyl and diene polymers;

polyesters; polyamides; polythioethers; properties of polymers and their related monomers.

Lectures only. (half course)

Textbook: Lenz: *Organic Chemistry of Synthetic High Polymers* (Wiley).

Chemistry N-341 (432)

Intermediate Physical Chemistry

Prerequisite: Chemistry N-241. Topics in chemical kinetics and thermodynamics including: mechanisms of elementary processes; reactions in the gas-phase and in solution; the Rice-Ramsperger-Kassel, and Slater theoretical treatments; Rice-Herzfeld mechanisms; applications of the foregoing treatments to selected systems; introduction to modern techniques for the study of very fast reactions; mathematical treatment of mixtures of real gases; partial molal properties; fugacities and activities; determination of activities of non-electrolytes and electrolytes. Lectures and laboratory. (full course)

Textbooks: Laidler: *Chemical Kinetics* (McGraw-Hill, second edition); Daniels, et al.: *Experimental Physical Chemistry*, seventh edition, (McGraw-Hill); Klotz and Rosenberg: *Chemical Thermodynamics* (Benjamin, 3rd Edition).

Chemistry N-346 (474)

Chemistry of High Polymers II

Prerequisites: Chemistry N-231, N-241. Study of the physical chemistry of high polymers including: examination of the physical properties of polymers; methods for studying polymers; polymer solution theory; molecular weight distributions and fractionation; molecular weight determinations by colligative properties, light scattering and ultracentrifuge techniques; mechanisms and kinetics of condensation and addition polymerization; free radical and ionic polymerization. Lectures only. (half course)

Textbook: Billmeyer: *Textbook of Polymer Science*, 2nd edition (Interscience).

Chemistry N-351 (440)

Theory and Practice of Biochemical Techniques

Prerequisites: Chemistry N-211, N-231, N-241; Chemistry N-371 previously or concurrently. Basic principles and applications of UV, IR, Raman, fluorescence, phosphorescence, NMR and EPR spectroscopy and mass spectrometry to chemistry and biochemistry; basic principles and applications of gas chromatography, column chromatography, thin layer chromatography, gel filtration and electrophoresis; introduction to optical rotary dispersion. Lectures and laboratory. (full course)

Textbook: Brittain, George and Wells: *Introduction to Molecular Spectroscopy* (Academic).

Chemistry N-352 (449)

Practice of Biochemical Techniques

Prerequisites: Chemistry N-353 and permission of the Department. Basic principles and applications of gas chromatography, column chromatography, thin-layer chromatography, gel filtration and electrophoresis; introduction to optical rotary dispersion. Lectures and laboratory. (half course)

Chemistry N-353 (490)

Introductory Chemical Instrumentation

Prerequisites: Chemistry N-211, N-231, N-241. Basic principles and applications of UV, IR, Raman, fluorescence, phosphorescence, NMR, and EPR spectroscopy and mass spectrometry to chemistry and biochemistry; basic principles of electricity and electronics; analysis of operational amplifier, servorecorder, pH meter, polarograph, logic and data acquisition circuits. Lectures and laboratory. (full course)
Textbooks: Malmstadt and Enke: *Digital Electronics for Scientists* (Benjamin); Brittain, George and Wells: *Introduction to Molecular Spectroscopy* (Academic).

Chemistry N-354 (499)

Introductory Instrumentation

Prerequisites: Chemistry N-351 and permission of the Department. Basic principles of electricity and electronics; analysis of operational amplifier, servorecorder, pH meter, polarograph, logic and data acquisition circuits. Lectures and laboratory. (half course)
Textbook: Malmstadt and Enke: *Digital Electronics for Scientists* (Benjamin).

Chemistry N-371 (441)

General Biochemistry

Prerequisites: Chemistry N-211, N-231, N-241; one full course in Biological Sciences at the university level. Comparative and functional approach to the chemical activities of living organisms including a fundamental simple compound common to most plants and animals and its utilization in biopolymers; basic metabolic patterns involved in life processes; introduction to bioenergetics and specialized functions of cells and organs; biochemical relationship to environment and its changes. Lectures and laboratory. (full course)
Textbook: Leninger: *Biochemistry* (Worth).

Chemistry N-381 (464)

General Industrial Chemistry

Prerequisites: Chemistry N-231, N-241. General aspects of industrial chemistry including: material balances; energy balances; the physical chem-

istry of industrial processes; factors governing plant location and process choice. This course is not applicable towards a major in Chemistry. Lectures only. (half course)

Chemistry N-382 (462)

Industrial Organic Chemistry I

Prerequisite: Chemistry N-231. Industrial organic processes including: organic synthesis; fermentation; coal and wood distillation; petroleum refining; oils and fats; pulp and paper; paints; resins and plastics; rubber. This course is not applicable towards a major in Chemistry. Lectures only. (half course)
Textbook: Shreve: *Chemical Process Industries* (McGraw-Hill, 3rd edition).

Chemistry N-383 (463)

Industrial Organic Chemistry II

Prerequisite: Chemistry N-231. This course is similar to Chemistry N-382, but deals with additional organic process industries. This course is not applicable towards a major in Chemistry. Lectures only. (half course)
Textbook: Shreve: *Chemical Process Industries* (McGraw-Hill, 3rd edition).

Chemistry N-431 (428)

Advanced Organic Chemistry

Prerequisites: Chemistry N-331, N-341, N-353. Advanced stereochemistry, atropisomerism, physical organic chemistry, chemistry of natural products, photochemistry. Laboratory includes experiments in physical organic chemistry, synthetic and instrumental methods. Lectures and laboratory. (full course)
Textbooks: March: *Advanced Organic Chemistry: Reactions, Mechanisms and Structure* (McGraw-Hill); Mislow: *Introduction to Stereochemistry* (Benjamin).

Chemistry N-441 (433)

Advanced Physical Chemistry

Prerequisites: Chemistry N-341; Mathematics N-270 previously or concurrently. Advanced topics in thermodynamics, including equilibrium, non-equilibrium and statistical approaches to selected systems; methods of determination of activities; the free-energy function and its application; thermodynamics of solids; estimation of thermodynamic properties; de Donder's concepts; fused salts; high-temperature thermodynamics; elements of probability theory; microcanonical, canonical and grand canonical ensembles; the Boltzmann distribution; quantum mechanical treatment of an ideal gas; Fermi-Dirac and Bose-Einstein statistics; Einstein and Debye models of a monoatomic crystal; conformation of polymer

chains. Lectures and laboratory. (full course)

Textbooks: Knuth: *Introduction to Statistical Thermodynamics* (McGraw-Hill); Salzberg, et al: *Laboratory Course in Physical Chemistry* (Academic Press).

Chemistry N-451 (491)

Advanced Chemical Instrumentation

Prerequisites: Chemistry N-311, N-331, N-341, N-353. Rotational and rotational-vibrational spectroscopy of linear, symmetrical top and asymmetrical molecules; vibrational spectroscopy, molecular symmetry and group theory; Raman spectroscopy; Fourier transform spectroscopy; electron spin and wide-line NMR spectroscopy; digital electronics in control equipment, integration, signal averaging A to D and D to A conversion and data acquisition. Lectures and laboratory. (full course)

Textbooks: Malmstadt and Enke: *Digital Electronics for Scientists* (Benjamin); Brittain, George and Wells: *Introduction to Molecular Spectroscopy* (Academic).

Chemistry N-461 (416)

Theoretical Chemistry

Prerequisites: Chemistry N-221, N-331, N-341; Mathematics N-270. Introduction to quantum theory; vibrational and rotational spectroscopy; structure of atoms and molecules; molecular orbital theory; valence bond theory; structure of metals, organo-metallic and coordination compounds; atomic and molecular spectroscopy; ligand field theory. Lectures only. (full course)

Textbook: La Paglia: *Introductory Quantum Chemistry* (Harper and Row).

Chemistry N-471 (443)

Advanced Biochemistry I

Prerequisites: Chemistry N-351, N-371. Selected topics from the general area of physical biochemistry; ultracentrifugation and its applications; biopolymer size and shape, energetics of catabolism and anabolism; comparative biochemistry; chemistry of the central nervous system; protein and enzyme chemistry; metabolic pathways. Lectures and laboratory. (full course)

Chemistry N-472 (444)

Advanced Biochemistry II

Prerequisites: Chemistry N-351, N-371. Selected topics from the general areas of structural biochemistry; biosynthetic pathways; lipids; carbohydrates; nucleic acids. Lectures and laboratory. (full course)

Chemistry N-491 (450)

Research Project and Thesis

Prerequisite: Permission of the Department.

The student will work on a research project under the direction of a staff member, and will write a thesis on the results. (full course)
NOTE: This course is required of final-year honours students. Some final-year major students may take it with special permission. Students planning to take this course should consult with the Chemistry department as early as possible the year before the final year.

COMPUTER SCIENCE

The courses in Computer Science listed below are acceptable as science credits in the Bachelor of Science degree. Course descriptions can be found in the Faculty of Engineering section. All courses listed are half courses.

Computer Science N-211 (211)

Introduction to Computers and Computing

Computer Science N-212 (212)

Computer Programming II

Computer Science N-401 (401)

Computer Organization

Computer Science N-402 (402)

Computer Systems

Computer Science N-403 (403)

Programming Languages

Computer Science N-411 (411)

Principles of Data Processing

Computer Science N-412 (412)

Data and File Structures I

Computer Science N-413 (413)

Data and File Structures II

Computer Science N-421 (421)

Introduction to the Theory of Automata

Computer Science N-430 (430)

Logical Design and Switching Theory

Computer Science N-440 (440)

Heuristic Planning

Computer Science N-450 (450)

Discrete System Simulation

Computer Science N-471 (471)

Digital Computer Programming and Numerical Methods

Computer Science N-490 (490)

Seminar and Project

ECONOMICS

The courses in Economics listed below are acceptable as science credits in the Bachelor of Science degree. Consult the Department.

Economics 281
Mathematics for Economists I
 Economics 482
Introduction to Econometrics I
 Economics 483

Introduction to Econometrics II
 Economics 484
Mathematical Models in Economics
 Economics 485
General Equilibrium Analysis

GEOLOGY

*Associate Professor and
 Chairman of the Department*
 André N. Deland

Associate Professor
 Henry S. de Romer
Assistant Professor
 Stephen Kumarapeli

Geology N-211 (211)

General Geology

This course is no longer offered.

It is replaced by Geology N-213 (213) and Geology N-214 (214).

Geology N-213 (213)

Introductory Geology I: Earth Materials

An elementary study of minerals, igneous, metamorphic and sedimentary rocks and their structures; fossils, soils, mineral resources, ground water; their origin and economic significance. Lab. work deals mainly with methods of identification of minerals, rocks and fossils; field trips to points of interest in Montreal area.

Lectures and laboratory. (half course)

NOTE: Students who have credit for Geology N-211, or 211, or 011 or the equivalent may not take this course for credit.

Geology N-214 (214)

Introductory Geology II: Earth Processes

Prerequisite: Geology N-213. Elementary treatment of the internal and external geological processes which shape the earth's surface, including the concept of plate tectonics; speculations on the origin of the earth and life. Laboratory work includes interpretation of topographic and geological maps. Lectures and laboratory. (half course)

NOTE: Students who have credit for Geology N-211, or 211, or 011 or the equivalent may not take this course for credit.

Geology N-231 (221)

Mineralogy

The study of the physical properties of minerals; their chemical properties; descriptive and determinative mineralogy; crystallography; various classes of symmetry. A few field trips near Montreal. Lectures and laboratory. (half course)

NOTE: Students who have credit for Geology 021 or equivalent may not take this course for credit.

Geology N-232 (222)

Optical Mineralogy

Prerequisite: Geology N-231. The study of minerals under the polarizing

microscope. Identification of minerals in thin sections and in oil immersion. Lectures and laboratory. (half course)

NOTE: Students who have credit for Geology 022 or the equivalent may not take this course for credit.

Geology N-321 (212)

Earth History and Stratigraphy

This course is no longer offered.

It is replaced by Geology N-322 (424) and Geology N-323 (425).

Geology N-322 (424)

Sedimentary Rocks and Stratigraphy

Prerequisite: Geology N-232. Sedimentary rocks, diagenetic changes; sedimentary facies; introduction to stratigraphic column and stratigraphic principles. Lectures and laboratory. One field trip around Montreal. (half course)

NOTE: Students who have credit for Geology N-321, or 212, or 012 or the equivalent may not take this course for credit.

Geology N-323 (425)

Historical Geology

Prerequisites: Geology N-213 and N-214.

Principles of historical geology and geochronology, evolution of major animal groups from Precambrian time to Recent including the evolution of man; geological evolution of North America; natural resources associated with sedimentary rocks. Lectures only. (half course)

NOTE: Students who have credit for Geology N-321, or 212, or 012 or the equivalent may not take this course for credit.

Geology N-341 (411)

Petrology

This course is no longer offered.

It is replaced by Geology N-342 (426).

Geology N-342 (426)

Igneous and Metamorphic Petrology

Prerequisites: Geology N-213, N-214, N-231 and N-232. Principles of physical chemistry applied to minerals and rocks; study of phase diagrams; the origin, formation, association, description and classification of igneous and metamorphic rocks. Lectures and laboratory. (full course)

NOTE: Students who have credit for Geology N-341 or 411 or the equivalent may not take this course for credit.

Geology N-348 (428)

Structural Geology

Prerequisites: Geology N-213 and N-214.

Behaviour of rock materials; description and classification of folds and fractures; evaluation of minor structural features in sedimentary, igneous and metamorphic rocks. Field trips. Lectures and laboratory. (half course)

NOTE: Students who have credit for Geology N-351 or 421 or the equivalent may not take this course for credit.

Geology N-349 (429)

Tectonics

Prerequisite: Geology N-348. Evolution of mega-structures of the earth; orogeny; tectonic patterns and hypotheses; emplacement of plutons. Lectures only. (half course)

NOTE: Students who have credit for Geology N-351 or 421 or the equivalent may not take this course for credit.

Geology N-351 (421)

Structural Geology

This course is no longer offered.

It is replaced by Geology N-348 (428) and Geology N-349 (429).

Geology N-352 (422)

Photogeology

Prerequisite: Geology N-342 or permission of the Department. Scope and purpose of photo-interpretation; geometry of aerial photographs and basic applied photogrammetry; geological interpretation, both qualitative and quantitative, of aerial photographs from Canada and other countries; techniques used in base map preparation with and without control points; exercises in photogeological mapping using stereoscopes and plotters. Lectures and laboratory. (half course)

Geology N-353 (423)

Field Geology

Prerequisite: Geology N-352. Two week field school in May; surface surveying methods; scope

and organization of field work; students are requested to prepare a geological map, sections and reports on field notes and aerial photographs. Group study of important outcrops; visits to local quarries and mines. Students do their field work immediately following their 2nd year examination period. They will be expected to pay minimum amount for their room and board. (half course)

Geology N-420 (223)

Paleontology

A study of the evolution of plants, invertebrates and vertebrates in time and space, the fossil record; preservation, identification and classification of fossils; methods and techniques. Lectures and laboratory. (half course)

Geology N-421 (430)

Geology of Canada

Prerequisites: Geology N-213, N-214 and N-322. The study of the geology, physical features and mineral resources of the five main natural regions of Canada. A number of selected areas will be examined in detail. Lectures only. (half course)

Geology N-460 (440)

Economic Mineral Deposits

Prerequisites: Geology N-342, N-348 and N-349. Nature, origin, mode of occurrence and classification of important metallic and non-metallic deposits; geographical distribution and outstanding occurrences. Integrated hand specimen and microscope (transmitted and reflected light) examination of representative samples from important mining camps. Lectures and laboratory.

Geology N-461 (441)

Geophysical Exploration

Prerequisites: Geology N-213, N-214 and N-231 or permission of the Department. A brief study of the principles of magnetic, gravimetric, electric and seismic methods of mineral exploration; interpretation of geophysical data; organization of exploration programs; selected case histories. Lectures and laboratory. (half course)

Geology N-462 (442)

Geochemical Exploration

Prerequisites: Geology N-213, N-214 and N-231 or permission of the Department. Basic principles; primary and secondary dispersion processes and their significance in geochemical exploration; field and analytical techniques; interpretation of geochemical data; organization of exploration programs; selected case histories. Lectures and laboratory. (half course)

MATHEMATICS

*Professor and Chairman
of the Department*
Victor Byers
Professor and Assistant Dean
Frederick W. Bedford
Professor
Norman Edward Smith
Visiting Professors
Charles Fox
John McNamee
Edna Vowles
Associate Professors
Kailash K. Anand
Mary A. Brian
G.E. Cohen
T. Dwivedi
Martin Harrow
James C. Hayes
G.S. Lingappaiah
M. Malik
Eugen A. Polltzer
John Senez
Manfred E. Szabo

J.C. Turgeon
M. Zaki
Assistant Professors
Leonda S. Adler
Morton M. Belinsky
Josef Brody
W.P. Byers
Maurice Cohen
R.L. Hall
N. Herscovics
Joel Hillel
H. Hung
M. Kanter
R. Moore
Joan M. Negrepontis
Harold W. Proppe
Robert M. Raphael
Y.H. Wang
Sessional Lecturers
M. Alberta Boswall
Alma N. Dobson
Robert McConnell

Mathematics N-201
Mathematics N-202
Mathematics N-203
Mathematics N-204
Mathematics N-205
Mathematics N-206
Mathematics N-207

Descriptions of the above courses are listed in the Faculty of Arts section of this announcement.

Mathematics N-210

Mathematics for the Biological Sciences

Prerequisite: Mathematics 003 or equivalent. Set theory, combinatorics, probability, matrices, differential and difference equations; applications to the biological sciences. (half course)

Mathematics N-241 (440)

Introductory Mathematical and Applied Statistics

Prerequisite: Mathematics 005 or equivalent. The introductory mathematical theory of statistics including: the experimental approach to statistics, probability, distributions, moments and sampling theory, problems in estimation, hypothesis testing, correlation and regression. (full course)

Mathematics N-261

Advanced Calculus

Prerequisites: Mathematics 004, 005. Methods of integration, Vector functions of a single variable,

curves. Scalar functions of several variables, limits, continuity, partial derivatives, total differential. Vector functions of several variables, divergence, curl. Maxima and minima. Multiple integrals, change of variables. Line integrals, Green's theorem. Surface integrals, divergence theorem, Stokes' theorem. Applications. (full course)

Mathematics N-270 (452)

Differential Equations for the Natural Sciences

Prerequisite: Mathematics 005 or equivalent. First order first degree equations, linear equations, operators, Laplace transforms, series solutions and special functions, numerical methods, elementary partial equations, Fourier series. (full course)

NOTE: Only one full credit will be given for both N-270 and N-271. Students credited with N-271 and N-371 may not take this course for credit.

Mathematics N-271

Differential Equations I

Prerequisites: Mathematics 004, 005; N-281 previously or concurrently. First order differential equations, applications of first order differential equations. Second order linear equations, series solutions of second order linear equations, higher order linear equations, systems of equations. Difference equations. (half course)

Mathematics N-281

Linear Algebra I

Prerequisites: Mathematics 002, 004 or equivalent. Vectors in \mathbb{R}^n , matrices, linear equations, vector spaces, linear transformations, determinants, equivalence relations on matrices, characteristic values and vectors, diagonalization, metric concepts. (full course)

Mathematics N-291

Algebraic Systems I

Prerequisite: Collegial pre-science mathematics profile or equivalent. Sets, relations, mappings, order, integers, rational, real and complex number fields, elementary properties of groups, rings, integral domains, fields. (half course)

Mathematics N-300

Number Systems

Sets; mathematical systems, concept of number; systems of numeration, operations and relations; whole numbers, fractional numbers, integers, rational numbers, irrational numbers, real numbers; geometric representations. (full course)
This course is available only to practicing teachers.

Mathematics N-301

Mappings

Prerequisite: Mathematics N-300. Mappings in the number systems; geometric transformations; translations, dilations; systems of numeration in bases other than 10; order axioms, inequalities, absolute value; elementary number theory; modular (clock) arithmetic. (full course)
This course is available only to practicing teachers.

Mathematics N-311

Numerical Analysis I

Prerequisite: Mathematics N-261 or equivalent. Introduction to computers and Fortran, solutions of equations, curve fitting, numerical differentiation and integration, matrix computation, errors. Lectures and laboratory. (half course)

Mathematics N-312

Numerical Linear Algebra

Prerequisite: Mathematics N-281 or equivalent. Linear systems, matrix inversion, relaxation methods, method of least squares, G-inverses, canonical forms, determination of characteristic values, applications. (half course)

Mathematics N-321

Mathematical Logic I

Prerequisites: three full post-collegial mathematics courses. Intuitive logic, axiomatic set theory, ordinals, axiom of choice, cardinals. (half course)

Mathematics N-322

Mathematical Logic II

Prerequisite: Mathematics N-321 or equivalent. First-order theories, models, incompleteness, selected topics. (half course)

Mathematics N-331

Deterministic Methods of Operations Research

Prerequisite: Mathematics N-281 or equivalent. Formulation of mathematical models in the deterministic case, methods of solution, testing the models. Applications to allocation (linear and dynamic programming, duality), competition (game theory), scheduling, networks and flow. Emphasis on mathematical methods, including matrix algebra and search techniques. (full course)

Mathematics N-341

Experimental Statistics

Prerequisite: Mathematics N-241 or equivalent. Experimental models. Regression and correlation, analysis of variance. Experimental designs. Randomized blocks, Latin squares, factorial confoundings. (half course)

Mathematics N-342

Industrial Statistics

Prerequisite: Mathematics N-241 or equivalent. Concepts of statistical control, X, R, P and C charts. Acceptance sampling, sequential probability ratio tests, sampling inspection, continuous sampling plans, reliability and life tests. (half course)

Mathematics N-343

Data Analysis and Survey Sampling

Prerequisite: Mathematics N-241 or equivalent. Basic concepts of sampling. Simple, stratified, systematic, cluster sampling. Optimum allocation, ratio estimates. Curve fitting, goodness-of-fit tests, non-parametric tests, correlation and regression (bivariate and multivariate). Course time equally divided between theory and practical work. (half course)

Mathematics N-351

Discrete Probability and Markov Chains

Prerequisite: Mathematics N-241. Axiomatic approach to probability theory. Bayes' rule, occupancy, runs and matching problems. Discrete random variables and their distributions. Generating functions. Introduction to Markov chains and queues. (half course)

Mathematics N-352

Mathematical Statistics

Prerequisites: Mathematics N-241, N-261.

Introduction to multivariate distributions, sampling distributions, point and interval estimation, tests of hypotheses (parametric and non-parametric), regression models. (half course)

Mathematics N-361

Real Analysis

Prerequisites: Mathematics N-261, N-281. Metric spaces, sequences and series, continuity, differentiation, Riemann integration, uniform convergence, equicontinuity, Weierstrass theorem. Differential forms, simplexes and chains, Stokes' theorem. (full course)

Mathematics N-366

Complex Analysis I

Prerequisite: Mathematics N-261. Algebra and geometry of complex numbers, analytic functions, Cauchy-Riemann equations, the Cauchy integral formula, Taylor's and Laurent's theorems, calculus of residues. (half course)

Mathematics N-371

Differential Equations II

Prerequisites: Mathematics N-271, N-366. Equations of hypergeometric type (Bessel's and Legendre's equations). Laplace transform, inverse transform, applications to partial and integral equations. Fourier series. Boundary value problems and Sturm-Liouville theory. (half course)

Mathematics N-381

Linear Algebra II

Prerequisites: Mathematics N-281, N-291. Matrices, linear transformations, determinants, metric concepts, inner product spaces, dual spaces, spectral theorem, bilinear and quadratic forms, canonical forms for linear transformations, matrix functions, selected topics. (half course)

Mathematics N-391

Algebraic Systems II

Prerequisite: Mathematics N-291. Groups: permutation groups, Cayley's theorem, cyclic groups, Lagrange's theorem, normal subgroups, quotient groups, isomorphism theorems. Rings: ideal and quotient rings, isomorphism theorems, characteristic. Fields: construction of quotient fields. Polynomials: polynomial rings, division algorithm, g.c.d., unique factorization, roots of a polynomial over a field. Selected topics. (half course)

Mathematics N-392

Elementary Number Theory

Prerequisites: three full post-collegial mathematics courses. Number systems, division and factorization, number-theoretic functions, congruences, algebraic congruences and primitive roots,

quadratic residues, diophantine equations. (half course)

Mathematics N-401

Functions

Prerequisite: Collegial mathematics or equivalent. Sets and logic; ordered field of real numbers; relations, functions; exponential, logarithmic and trigonometric functions. (full course)
This course is available only to practicing teachers.

Mathematics N-404

Geometry

Prerequisite: Collegial mathematics or equivalent. Vector spaces, linear transformations; affine geometry in the plane and 3-space; inner products; Euclidean geometry; affine subspaces; analytic geometry of lines and planes; quadratic forms; conics and quadrics; polar coordinates; parametric equations. (full course)
This course is available only to practicing teachers.

Mathematics N-431

Probabilistic Methods of Operations Research

Prerequisites: (a) Mathematics N-261; N-351 previously or concurrently; (b) Mathematics 440, 452. Difference and differential-difference equations, z transforms, stochastic distributions, Markov chains, queuing theory, inventory theory, reliability and renewal theory, competition and introduction to decision theory, dynamic programming, simulation and Monte Carlo techniques; formulation, testing and stability of mathematical models Incorporating uncertainty. (full course)

Mathematics N-432

Theory of Graphs and Networks

Prerequisite: Mathematics N-331. Directed and undirected graphs. Partitions, planar and non-planar graphs, matrix representation, applications, network theory. (half course)

Mathematics N-433

Calculus of Variations

Prerequisite: Mathematics N-371 or N-270. Nature of problems. Weak variations, the first variation, Euler's equation. The second variation, Jacobi's equation, Legendre's test, conjugate points. Relative maxima and minima, isoperimetrical problems. Integrals with variable end points. Applications to problems in pure and applied mathematics, the principle of least actions. Strong variations, the Weierstrass E-function. (half course)

Mathematics N-434

Optimization theory

Prerequisite: Permission of Department. A survey

of optimization methods, search techniques, non-linear programming, dynamic programming. An introduction to optimal control and to the maximum principle. (half course)

Mathematics N-441

Seminar in Applied Statistics

Prerequisite: Permission of the Department. Formulation of some real-life problems where applications of statistical methods can be exploited. Analysis, interpretation of data and inference of results. A report on a specific aspect of statistics may be required. (half course)

Mathematics N-451

Topics in Probability

Prerequisites: Mathematics N-261; N-351 or permission of Department. Axioms for probability space. Random variables. Distribution functions, mathematical expectation. Law of large numbers. Limit theorems. Stochastic processes, Markov, Poisson and Gaussian Processes. (half course)

Mathematics N-452

Linear Statistics

Prerequisites: Mathematics N-261, N-281, N-352. Multivariate normal distribution, distribution of quadratic forms. Linear models. General linear hypothesis of full rank. (half course)

Mathematics N-461

Real Analysis II

Prerequisites: Mathematics N-361, N-391. Measure spaces, Lebesgue measure, measurable functions, Lebesgue integration, Lebesgue-Stieltjes integration. Function spaces, Ascoli-Arzelà theorem, Stone-Weierstrass theorem, Hilbert spaces, Hahn-Banach theorem. (full course)

Mathematics N-466

Complex Analysis II

Prerequisite: Mathematics N-366. Analytic functions, power series, Cauchy's theorem, Morera's and Liouville's theorems, singularities, maximum modulus principle, Rouché's theorem. Conformal

mappings, linear transformations, analytic continuation. Special functions. (half course)

Mathematics N-467

Complex Analysis III

Prerequisite: Mathematics N-466. Normal families, Riemann mapping theorem, harmonic functions, elliptic functions, univalent functions, selected topics. (half course)

Mathematics N-471

Partial Differential Equations

Prerequisite: Mathematics N-371

Classification of partial differential equations, the Cauchy-Kowalewski theorem, characteristics, boundary value and eigen value problems for elliptic equations, initial value and initial boundary value problems for parabolic and hyperbolic equations. (half course)

Mathematics N-475

Geometry and Topology

Prerequisite: Permission of Department. Topological spaces, separation axioms, compactness, connectedness. Introduction to combinatorial and algebraic topology: Euler characteristic, classification of surfaces; winding number of a curve, degree of a map, vector fields, applications; map colouring problems. (half course)

Mathematics N-491

Abstract Algebra I

Prerequisite: Mathematics N-391. Groups: composition series, direct product of groups, abelian groups, Sylow's theorems, solvable groups. Rings: Euclidean rings, unique factorization domains, principal ideal domains. Maximal, prime and primary ideals; ideals in noetherian rings, modules and vector spaces. Algebras. Selected topics. (half course)

Mathematics N-492

Abstract Algebra II

Prerequisite: Mathematics N-491. Fields: prime fields; algebraic, finite, simple, separable, inseparable, normal extensions; finite fields; perfect and imperfect fields. Group characters. Galois theory; the fundamental theorem, solvability by radicals, transcendental extensions. (half course)

PHYSICS

Associate Professor and Chairman of the Department

Arlin L. Kipling

Professor

Walter R. Raudorf

Associate Professors

David E. Charlton

Barry Frank

Sushil K. Misra

Stanley P. Morris

Jean-Pierre Pétolas

Ramesh C. Sharma

Adolph E. Smith

Assistant Professors

Nelson W. Eddy

John A. MacKinnon

Director of Laboratories

Francisco Tomas

Physics N-210 (210)

Great Discoveries in Modern Physics

This course is intended primarily for Arts students.

It traces the fundamental ideas of modern physics and their historical development by a descriptive and reflective study of the most telling discoveries

in modern physics. (full course)

NOTE: Science students or students who have credit for Physics 010 may not take this course for credit.

References: Beiser: *World of Physics*. Dampier & Dampier: *Readings in Literature of Science*.

Physics N-242 (440, 442)

Classical Mechanics

Prerequisite: Mathematics N-261 previously or concurrently. Laws of classical mechanics, statics, kinematics, dynamics of a particle, moving reference frames, central forces, dynamics of a system of particles, dynamics of rigid bodies in a plane, Lagrange's equations. Lectures and laboratory. (full course)

Reference: G.R. Fowles: *Analytical Mechanics* (Holt, Rinehart and Winston, 1962).

Physics N-252 (452)

Electrodynamics

Prerequisite: Mathematics N-261 previously or concurrently. Electric forces and electric fields, electric potential, capacitance, dielectric theory and behavior, direct currents, resistance, thermoelectricity, moving charges and magnetic fields, electromagnetic induction, the magnetic properties of matter, galvanometers, transient currents, Maxwell's equations and electromagnetic waves. Lectures and laboratory. (full course)

Reference: H.E. Duckworth: *Electricity and Magnetism* (Holt, Rinehart and Winston, 1960).

Physics N-336 (471)

Methods of Theoretical Physics

Prerequisites: Mathematics N-261, N-270; Physics 001 and 002. Sturm-Liouville Theory; stretched string, review of Fourier series, applications of Fourier series, Fourier integrals, vibrating membrane, operators, method of eigenfunction expansions, cylindrical functions, spherical harmonics, perturbation theory for S.L. problem. Group theory: symmetry considerations, definitions, theory of matrix representations, applications. Tensor calculus; tensor algebra, line element, covariant differentiation. (full course)

References: D.F. Lawden: *An Introduction to Tensor Calculus and Relativity* (Methuen, 1962); I. Schensted: *Application of Group Theory to Quantum Mechanics* (Neo Press, 1965); R.E. Collins: *Mathematical Methods for Physicists and Engineers* (Reinhold, 1968); E. Butkov: *Mathematical Physics* (Addison-Wesley, 1968).

Physics N-345 (441)

Advanced Classical Mechanics and Relativity

Prerequisites: Physics N-242; Mathematics N-270 previously or concurrently. Variational principles

and Lagrange's equations, kinematics of rigid body motion, rigid body motion, Hamilton's equations of motion, Canonical transformations, Hamilton-Jacobi theory, small oscillations, special relativity, mechanics of deformable bodies. (full course)

Reference: H. Goldstein: *Classical Mechanics* (Addison-Wesley, 1950).

Physics N-353 (222)

Optics

Prerequisites: Mathematics N-261 and Physics 003. Geometrical optics: Plane surfaces, spherical surfaces, optical instruments. Wave optics: Review of simple harmonic motion, wave equation, superposition of waves, electromagnetic waves, scattering, polarization, interference - coherent sources, interference - uniform extended sources, Fresnel diffraction, waves in a dispersive medium, lasers. Lectures and laboratory. (half course)

References: E.A. Jenkins, H.E. White: *Fundamentals of Optics* (McGraw-Hill, 1957); D.H. Towne: *Wave Phenomena* (Addison-Wesley, 1967); R.H. Webb: *Elementary Wave Optics* (Academic Press, 1969).

Physics N-354 (453)

Electronics

Prerequisite: Physics N-252. Introductory concepts, AC circuit theory, electrical measuring instruments, tube theory, triode amplifier, RC coupled pentode amplifier, transformer coupled amplifier, transistor theory, modern signal processing techniques for optimal signal to noise ratios, amplifiers, oscillators, pulse and switching circuits, additional electronic devices. Lectures and laboratory. (full course)

References: J.J. Brophy: *Basic Electronics for Scientists* (McGraw-Hill, 1966); U.S. Department of the Army: *Basic Theory and Application of Transistors* (Dover, 1963).

Physics N-365 (Half of 461)

Atomic Physics

Prerequisites: Mathematics N-261; Physics 003. Kinetic theory, origin of quantum theory, electrons and ions, electromagnetic radiation, the Rutherford atom, the Bohr atom, quantum mechanics, atomic structure, molecules and solids. Lectures and laboratory. (half course)

References: F.K. Richtmyer, E.H. Kennard, J.N. Cooper: *Introduction to Modern Physics* (McGraw-Hill, 1969); C.H. Blanchard, C.R. Burnett, R.G. Stoner, R.L. Weber: *Introduction to Modern Physics* (Prentice Hall, 1969); R.T. Weidner, R.L. Sells: *Elementary Modern Physics* (Allyn and Bacon, 1968).

Physics N-434 (232)

Thermodynamics

Prerequisites: Mathematics N-261, N-270; Physics N-242. Temperature, simple thermodynamic systems, work, heat and first law, ideal gases, kinetic theory, heat engines, reversible and irreversible processes, entropy, thermodynamic potentials. Lectures and laboratory. (half course)
Reference: M.W. Zemansky: *Heat and Thermodynamics* (McGraw-Hill, 1968).

Physics N-435

Statistical Physics

Prerequisite: Physics N-434. Basic probability concepts, statistical description of systems of particles, thermal interaction, microscopic theory and macroscopic measurements, Canonical distribution in the classical approximation, general thermodynamic interaction, elementary kinetic theory of transport processes. (half course)
References: F. Reif: *Fundamentals of Statistical and Thermal Physics* (McGraw-Hill, 1965); F. Reif: *Statistical Physics* (McGraw-Hill, 1967); P.M. Morse: *Thermal Physics* (Benjamin, 1969).

Physics N-457 (451)

Advanced Electrodynamics

Prerequisites: Physics N-252 and N-336. Fundamentals of electromagnetics, multipole fields, the equations of Laplace and Poisson, the electromagnetic field equations, electromagnetic waves, reflection and refraction, the Lienard-Wiechert potentials and radiation, radiating systems, classical electron theory, relativistic electrodynamics. (full course)
References: J.D. Jackson: *Classical Electrodynamics* (Wiley, 1962); J.B. Marion: *Classical Electromagnetic Radiation* (Academic Press, 1965); P. Lorrain, D. Corson: *Electromagnetic Fields and Waves* (Freeman, 1970); J.R. Reitz, F.J. Milford: *Foundations of Electromagnetic Theory* (Addison-Wesley, 1960).

Physics N-466 (Half of 461)

Nuclear Physics

Prerequisite: Physics N-365. Discussion of nuclear properties, deuteron, scattering, nuclear models, nuclear disintegrations, nuclear reactions, elementary particles and cosmic rays. Lectures and laboratory. (half course)
References: H. Enge: *Introduction to Nuclear Physics* (Addison-Wesley, 1966); A.P. Ayra: *Fundamentals of Nuclear Physics* (Allyn and Bacon, 1966); D. Halliday: *Introductory Nuclear Physics* (Wiley, 1955); C.M.H. Smith: *A Textbook of Nuclear Physics* (Pergamon, 1966).

Physics N-467

Solid State Physics

Prerequisite: Physics N-477. Crystal structure,

crystal binding, phonons and lattice vibrations, free electron fermi gas, energy bands, semiconductor crystals, superconductivity, dielectric properties, survey of magnetic properties, magnetic resonance, optical phenomena in insulators. (half course)

Reference: C. Kittel: *Introduction to Solid State Physics* (Wiley, 1966).

Physics N-477 (Half of 472)

Quantum Mechanics I

Prerequisites: Physics N-336, N-345 and N-365. State functions and their interpretation, linear momentum, motion of a free particle, Schrodinger's equation. (half course)
References: D.S. Saxon: *Elementary Quantum Mechanics* (Holden-Day, 1968); D.A. Park: *Introduction to the Quantum Theory* (McGraw-Hill, 1964).

Physics N-478 (Half of 472)

Quantum Mechanics II

Prerequisite: Physics N-477. States of a particle in one dimension, approximation methods, systems of particles in one dimension, motion in three dimensions, angular momentum and spin. (half course)
References: D.S. Saxon: *Elementary Quantum Mechanics* (Holden-Day, 1968); D.A. Park: *Introduction to the Quantum Theory* (McGraw-Hill, 1964).

Physics N-481 (481)

Biophysics

Prerequisites: Chemistry N-231 and one course in Biological Sciences. Topics treated will include the biophysical view of the cell, energy relations in the cell, action of ionizing radiation, biophysics of muscle and nerve. (half course)
Reference: J.L. Oncley: *Biophysical Science* (Wiley, 1959).

Physics N-496 (491)

Methods of Experimental Physics

Prerequisites: Physics N-354 and N-365. Experiments from the fields of atomic physics, solid state physics and nuclear physics. Experiments which teach the basic principles of digital logic and the common applications of operational amplifiers. Laboratory only. (full course)

PSYCHOLOGY

The courses in Psychology listed below are acceptable as science credits in the Bachelor of Science degree. Course descriptions can be found in the Faculty of Arts Section.

Psychology N-241

Statistical Methods in Psychology A

Psychology N-242

Statistical Methods in Psychology B

Psychology N-271

Experimental Psychology 1A

Psychology N-273

Experimental Psychology 1B

Psychology N-275

Directed Study and Research on a Selected Topic

Psychology N-461

Physiological Psychology

Psychology N-462

Comparative Psychology

Psychology N-471

Experimental Psychology II

Psychology N-472

Advanced Experimental Problems

Faculty of Commerce
& Administration

Faculty of Commerce & Administration

Faculty of Commerce & Administration

Faculty of Commerce & Administration

Major Programs

Accountancy		Economics		Finance		General Business		Management		Marketing		Quantitative Methods	
1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term	1st term	2nd term
FIRST YEAR													
Acct. N-213	Acct. N-214	Acct. N-213	Acct. N-214	Acct. N-213	Acct. N-214	Acct. N-213	Acct. N-214	Acct. N-213	Acct. N-214	Acct. N-213	Acct. N-214	Acct. N-213	Acct. N-214
Mark. N-213	Acct. N-216	Mark. N-213	Acct. N-216	Mark. N-213	Acct. N-216	Mark N-213	Acct. N-216	Mark. N-213	Acct. N-216	Mark. N-213	Acct. N-216	Mark. N-213	Acct. N-216
Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244	Q.M. N-243	Q.M. N-244
Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209	Econ. N-209
& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or	& N-210 or
N-212	N-212	N-212	N-212	N-212	N-212	N-212	N-212	N-212	N-212	N-212	N-212	N-212	N-212
Man. N-213	Man. N-214	Man. N-213	Man. N-214	Man. N-213	Man. N-214	Man. N-213	Man. N-214	Man. N-213	Man. N-214	Man. N-213	Man. N-214	Man. N-213	Man. N-214
Comp.		Comp.		Comp.		Comp.		Comp.		Comp.		Comp.	
Sc. N-211	Man. N-215	Sc. N-211	Man. N-215	Sc. N-211	Man. N-215	Sc. N-211	Man. N-215	Sc. N-211	Man. N-215	Sc. N-211	Man. N-215	Sc. N-211	Man. N-215
SECOND YEAR													
Man. N-340	Man. N-341	Man. N-340	Man. N-341	Man. N-340	Man. N-341	Man. N-340	Man. N-341	Man. N-340	Man. N-341	Man. N-340	Man. N-341	Man. N-340	Man. N-341
Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314	Q.M. N-313	Q.M. N-314
Fin. N-314	Fin. N-315	Fin. N-314	Fin. N-315	Fin. N-314	Fin. N-315	Fin. N-314	Fin. N-315	Fin. N-314	Fin. N-315	Fin. N-314	Fin. N-315	Fin. N-314	Fin. N-315
Acct. N-315	Mark.N-350	Acct. N-315	Mark.N-350	Acct. N-315	Mark.N-350	Acct. N-315	Mark.N-350	Acct. N-315	Mark. N-350	Acct. N-315	Mark.N-350	Acct. N-315	Mark.N-350
Man. N-345	Man. N-346	Man. N-345	Man. N-346	Man. N-345	Man. N-346	Man. N-345	Man. N-346	Man. N-345	Man. N-346	Man. N-345	Man. N-346	Man. N-345	Man. N-346
Acct. N-313	Acct. N-314	Econ. N-311	Econ.N-311	Econ. Elect.	Econ. Elect.	Elect.	Elect.	Man. N-368	Man. N-369	Elect.	Mark.N-352	Q.M. N-353	Q.M. N-354
		or N-312	or N-312										
THIRD YEAR													
Man. N-460	Man. N-461	Man. N-460	Man. N-461	Man. N-460	Man. N-461	Man. N-460	Man. N-461	Man. N-460	Man. N-461	Man. N-460	Man. N-461	Man. N-460	Man. N-461
Man. N-475	Man. N-476	Man. N-475	Man. N-476	Man. N-475	Man. N-476	Man. N-475	Man. N-476	Man. N-475	Man. N-476	Man. N-475	Man. N-476	Man. N-475	Man. N-476
Acct. N-441	Acct. N-421	Econ. N-316	Econ.N-316	Fin. Elect.	Fin. Elect.	Elect.	Elect.	Man. N-466	Man. N-467	Mark. Elect. (4)	Mark. Elect.	Q.M. N-425	Q.M. Elect.
		or N-318 (2) or N-318											
Acct. N-432	Acct. N-433	Econ. Hist. (1)	Econ. Hist.	Fin. Elect.	Fin. Elect.	Elect.	Elect.	Man. Elect.	Man. Elect.	Mark. Elect.	Mark.N-490	Q.M. Elect.	Q.M. Elect.
Elect.	Elect.	Econ. Elect (3)	Econ Elect	Elect.	Elect.	Elect.	Elect.	Elect.	Elect.	Mark. Elect.	Elect.	Elect.	Elect.
TOTAL COURSES FOR MAJORS (2)		34		34		34		34		34		34	

(1) One of Econ. N-330, N-434 or N-438.

(2) Honours students in Economics must take Economics N-318.

(3) Honours students in Economics must take Economics N-415.

(4) Honours students in Marketing must take Marketing N-402 and N-403.

Commerce & Administration

Dean

Andrew Berczi

Assistant Dean-Administrative Affairs

Harvey Mann

Assistant Dean-Student Affairs

Roland O. Wills

Members of the Commerce and Administration Consultative Committee are listed at the end of this section.

Philosophy of the Commerce Program

This faculty is engaged in the education of students for business life. It is our intention to graduate students liberally educated about business. To accomplish this we have designed a multi-disciplinary and inter-disciplinary curriculum which is intellectually challenging.

The first year of the program is intended to provide an informative accumulation of operational attitudes, skills and tools which form the base for the core concentration.

The core concentration in the second year attempts to give broad experience in all phases of business in a co-ordinated, analytical and reflective period of study. All the resources of the student's intellectual ability are combined with his inter-disciplinary studies to analyze, formulate, judge, and solve challenging business situations.

The last year of the program is intended to provide the student with an opportunity to immerse himself in an area of specialized study. In addition, the student participates in a course which is designed to test his ability to integrate his knowledge and to view the study of business as a whole.

In view of this design all students must follow the sequence of courses on the basis of an academic year as outlined in the curriculum. No student will be permitted to register for second or third year courses without having completed the courses of the first academic year. Exceptions may be authorized in writing for valid reasons by the Dean or the Assistant Dean - Student Affairs.

Admission Requirements

General admission requirements are listed on page 34.

Specific requirements for admission to the Faculty of Commerce & Administration for students in CEGEP are two semester courses in mathematics - College Algebra and Introduction to Calculus. Arrangements will be made in the first-year program to give special instruction to those students who lack adequate mathematical preparation.

Degree Requirements

To obtain the degree of Bachelor of Commerce, all students are required to follow either a major or an honours program. Thirty-four half-courses are required for a major or honours. Major and honours programs are available in each of the following areas:

Accountancy
Economics
Finance
General Business
Management
Marketing
Quantitative Methods

To graduate with a major requires successful completion of all prescribed courses, while graduation with honours requires, in addition, a high level of academic performance. The regulations governing qualifications for an honours degree are given below.

Students will indicate their preferred field of concentration, either major or honours, at the time of application for entry. It should be noted, however, that since the program of study of the first year is common to all programs, students may change to another program, provided, of course, that the capacity of the program permits it.

The preceding table gives complete details of the requirements of each program.

Honours Program

The university has approved programs leading to an honours degree in certain selected fields. An honours degree indicates specialization within a field, and high academic standing. In order to qualify for an honours degree a student must meet all of the academic qualifications and comply with the regulations set forth below.

1. A candidate for an honours degree should indicate such intention at registration and consult the honours representative of the department(s) concerned as soon as possible. Acceptance as an honours student will depend on performance during the first year. The honours standing will be reviewed annually.

A student who has followed the courses prescribed for the honours program and has met all the requirements may enter the program with the approval of the honours representative any time before beginning the final five courses. No retro-active approval of entry may be made.

2. A student who enters with advanced standing may apply pro tanto credits which are applicable to the honours degree requirements, upon approval by the department(s).

A transfer student must complete a minimum of five credits in the basic honours program in residence to receive a degree with honours.

3. An honours student must maintain a 'B' average with no grade lower than 'C' in all courses in the basic honours program.

An honours student must meet the general degree requirements as well as the specific requirements for an honours degree, and must obtain at least a 'C' average over the total degree program.

Failure in any course will mean suspension or withdrawal from the honours program. Students who fail to meet acceptance requirements or who are required to withdraw from the honours program will proceed as majors. Reinstatement into the honours program is possible only by recommendation by the honours representative.

4. A student shall be allowed to qualify for only one honours degree in either a single or combined honours program.

5. A degree with honours in any program is granted upon graduation only with the approval of the University Council.

Requirements for Honours

Accountancy

The following courses constitute an honours program in Accountancy, provided the student maintains the required academic standing:

First Year: Accountancy N-213, N-214 and N-216; Management N-213, N-214 and N-215.

Second Year: Accountancy N-313, N-314 and N-315; Finance N-314 and N-315; Management N-340; Quantitative Methods N-313 and N-314.

Third Year: Accountancy N-421, N-432, N-433 and N-441; Quantitative Methods N-423 and N-424.

Business

The following courses constitute an honours program in Business, provided the student maintains the required academic standing:

First Year: Accountancy N-216; Management N-213 and N-214; Marketing N-213.

Second Year: Quantitative Methods N-313 and N-314; Marketing N-350; Finance N-314 and N-315; Accountancy N-315.

Third Year: Management N-460 and N-461; Two half courses at the '400' level from three of: Accountancy, Finance, Quantitative Methods, Marketing.

Economics

The following courses constitute an honours program in Economics, provided the student maintains the required academic standing:

Pattern C (for students in the Faculty of Commerce and Administration)

NOTE: Students who have not completed a full course in calculus prior to their admission to this program must make up the deficiency.

Economics N-209 and N-210 or N-212 (213); N-311 (411) or N-312 (413); N-318 (452); N-415 (421);

Accountancy N-213; N-214 (211);

Quantitative Methods N-243; N-244 (242);

One economic history course chosen from among: Economics N-330 (221), N-430 (420), N-434 (424), N-438 (428);

Finance N-314; N-315 (413).

Finance

The following courses constitute an honours program in Finance, provided the student maintains the required academic standing:

First Year: Accountancy N-213, N-214 and N-216.

Second Year: Quantitative Methods N-313 and N-314; Finance N-314, N-315; Economics N-311 or N-316; Accountancy N-315.

Third Year: Any six (6) of the following: Finance N-417, N-418, N-430, N-431, N-440, N-441, N-450, N-455, N-460, N-461.

In addition students must take Economics 011, or N-209 and N-210 or N-212 or the equivalent.

Management

The following courses constitute an honours program in Management, provided the student maintains the required academic standing:

First Year: Management N-213, N-214 and N-215.

Second Year: Finance N-315; Management N-340, N-341, N-345, N-346, N-368 and N-369; Marketing N-350; Quantitative Methods N-313 and N-314.

Third Year: Management N-460, N-461, N-466, N-467, N-475 and N-476 plus any two of the following: Management N-462, N-463, N-464 and N-465.

Marketing

The following courses constitute an honours program in Marketing, provided the student maintains the required academic standing:

First Year: Accountancy N-216; Management N-213, N-214 and N-215; Marketing N-213.

Second Year: Quantitative Methods N-313 and N-314; Marketing N-350 and N-352; Accountancy N-315.

Third Year: Management N-476, Marketing N-490 and any five of: Marketing N-402, N-403, N-452, N-453, N-454, N-462, N-463 or N-464.

In addition, students must take Economics 011 or N-209 and N-210 or N-212 or the equivalent.

Quantitative Methods

The following courses constitute an honours program in Quantitative Methods, provided the student maintains the required academic standing:

First Year: Accountancy N-213, N-214 and N-216; Quantitative Methods N-243 and N-244; Computer Science N-211 and Management N-215.

Second Year: Quantitative Methods N-313, N-314, N-353 and N-354; Finance N-314 and N-315. Accountancy N-315.

Third Year: Quantitative Methods N-425 and N-426; Any four of: Quantitative Methods N-415, N-423, N-424, N-433, N-445, N-446.

Failures

Students are cautioned that a failure in a first term course will prohibit them from proceeding to a second term course for which the first is a prerequisite. Students who find themselves in this position have two alternatives available:

1. They may drop the second term course and reregister in a section of the same course, if available.
2. They may drop the second term course and apply to write the supplemental examination (in March for potential graduates and in July for others) if they

are eligible to do so. In this case, students may register in another course for which they have the necessary prerequisite.

There will be a course change period at the beginning of the second term at which time students falling in the above categories must make arrangements with the Office of the Registrar for the necessary course changes.

French Language

The business community, as well as governments, now express a preference for university graduates who are bilingual. We, therefore, advise all students to take advantage of the opportunities available during their years at this university to ensure that they are bilingual when they present themselves for employment upon graduation.

The Institute of Chartered Accountants

A graduate of Sir George Williams University holding the Bachelor of Commerce degree (major or honours in Accountancy) may register as an apprentice with the Institute of Chartered Accountants of Quebec and may apply for exemptions based on academic achievement.

Undergraduate Commerce Degree and School of Retailing Diploma

Undergraduates who wish to receive the Bachelor of Commerce degree and the School of Retailing Diploma must follow the Major in Marketing curriculum, choosing Marketing N-463 as an elective. The student must also work two full years in retailing before becoming eligible for the retail Diploma. Applications for the diploma should be accompanied by documentary evidence of the applicant's in-store progress and addressed to the Director of the School, who will award the Diploma if he is satisfied that the applicant has obtained sufficient and relevant retail experience.

Courses

Notice To Non-Commerce Students

Students not registered in the Faculty of Commerce & Administration, who wish to undertake any courses offered by the faculty, but do not have the stated prerequisites, must obtain permission in writing from the chairman of the department concerned, *prior to registration*.

ACCOUNTANCY

*Professor and Chairman of the
Department*

James G. Finnie
Associate Professors
G. Robert Curnew
Adam Dickie
Harvey Mann

Assistant Professors

Frank P. Dougherty
E. Brian Markland
Wolfram E. Pietzsch
Visiting Associate Professor
Horace Domigan

Accountancy N-213
Financial I

This course is an introduction to the modern procedures used in the provision of financial information about an economic entity, usually a business enterprise, taking into consideration the needs of the users of the information. The course covers the fundamental principles involved in the preparation of reports and statements. Lectures and Lab. (half course)

NOTE: Students who have credit for Accountancy 211 may not take this course for credit.

Accountancy N-214
Financial II

Prerequisite: Accountancy N-213 or equivalent. This course continues the study of the material in Accountancy N-213. Lectures and Lab. (half course)
NOTE: Students who have credit for Accountancy 211 may not take this course for credit.

Accountancy N-216
Managerial I

Prerequisite: Accountancy N-213 or equivalent. This course is an introduction to the principles, and to the development of accounting information for the use of management. (half course)
NOTE: Students who have credit for Management 411 or Finance 416 may not take this course for credit.

Accountancy N-313
Intermediate

Prerequisite: Accountancy N-214 and N-216, or equivalent. This is a course continuing at a more advanced level, integrating the first year work with more advanced theory and application, with emphasis on analytic method and interpretative processes, and relating particularly to procedural development while giving consideration to the requirements of the companies acts. Lectures and Lab. (half course)
NOTE: Students who have credit for Accountancy 411 may not take this course for credit.

Accountancy N-314
Advanced

Prerequisite: Accountancy N-313 or equivalent. This is an advanced course covering the formation and maintenance, the expansion and contraction,

and the liquidation of business organizations, including partnerships, limited companies, estates and trusts. Lectures and Lab. (half course)
NOTE: Students who have credit for Accountancy 412 may not take this course for credit.

Accountancy N-315
Managerial II

Prerequisites: Accountancy N-214 and N-216 or equivalent. This course is an introduction to systems theory as applied to the development of information for use by management. (half course)
NOTE: Students who have credit for Management 411 or Finance 416 or Accountancy N-215 may not take this course for credit.

Accountancy N-421
Cost Accounting (Introductory)

Prerequisite: Accountancy N-313 or equivalent. This course provides a knowledge of the fundamentals of cost accounting together with the latest procedures and cost accounting systems. (half course)
NOTE: Students who have credit for Accountancy 421 may not take this course for credit.

Accountancy N-422
Cost Accounting (Advanced)

Prerequisite: Accountancy N-421 or equivalent. This course continues at an advanced level the study of modern cost accounting systems, and emphasizes the contemporary problems facing cost accountants, and their potential solution by the use of sophisticated techniques. (half course)
NOTE: Students who have credit for Accountancy 422 may not take this course for credit.

Accountancy N-432
Auditing (Introductory)

Prerequisite: Accountancy N-314 or equivalent. This course involves the study of the principles underlying the practice of auditing. The types of audits and examinations, the qualifications of an auditor, and auditing business transactions. (half course)
NOTE: Students who have credit for Accountancy 431 may not take this course for credit.

Accountancy N-433

Auditing and Investigations

Prerequisite: Accountancy N-432 or equivalent.
This course involves the study of the legal duties and responsibilities of auditors and auditors' reports and certificates. Types of investigations are also studied. (half course)

NOTE: Students who have credit for Accountancy 431 may not take this course for credit.

Accountancy N-441

Taxation

Prerequisite: Accountancy N-214 or equivalent.
This course is designed to give authentic and up-to-date information on one of the major factors in business today. Topics covered include company and personal income taxes and a survey of sales taxes, estate taxes and succession duties and other levies. (half course)

NOTE: Students who have credit for Commercial Law 441 may not take this course for credit.

Accountancy N-451

Machine Accounting

Prerequisite: Accountancy N-214 or N-216 or

equivalent. This course is an introduction to data processing concepts and their application in the production of accounting and statistical information for business management. (half course)

NOTE: Students who have credit for Accountancy 451 may not take this course for credit.

Accountancy N-461

Accounting Theory

Prerequisite: Accountancy N-314.

This course will study:

1) the development of "Generally Accepted Accounting Principles" (G.A.A.P.) up to the present time; 2) the present status of G.A.A.P. as indicated by the pronouncements of the Canadian and U.S. professional accounting bodies; and 3) the basic nature of G.A.A.P., their shortcomings, and proposals for their amendment or revision. Item (3) will include the examination of price-level accounting and at least one complete model of accounting for business income.

In addition to the basic texts, students will be expected to read widely in the area, especially in the various journals of the profession. (half course)

FINANCE

*Professor and Chairman of the
Department*

C. C. Potter

Associate Professor

Michael Kawaja

Assistant Professors

L. Kryzanowski

S. J. Silverton

Special Lecturer

Wm. T. G. Hackett

Guest Lecturer

Pierre Sevigny

Finance N-314

Business Finance I

Prerequisites: Economics N-209 and N-210 or N-212, Accountancy N-214 and N-216. The finance function: its setting and its relation to management planning and control of investment in current and fixed assets. (half course)

NOTE: Students who have credit for Finance 413 may not take this course for credit.

Finance N-315

Business Finance II

Prerequisite: Finance N-314. The finance function: The supply of funds; the analysis of the distribution of risk, income, control and taxation that the obligations involve, and the relation of liquidity preference and such obligations. (half course)

NOTE: Students who have credit for Finance 413 may not take this course for credit.

Finance N-417

Capital Budgeting Theory

Prerequisite: Finance N-315. An examination of the criteria for efficient investments and optimum financial budgeting. (half course)

NOTE: Students who have credit for Finance 416 may not take this course for credit.

Finance N-418

Cost Benefit Analysis

Prerequisite: Finance N-315. Private and public resource investment and associated problems. (half course)

NOTE: Students who have credit for Finance 416 may not take this course for credit.

Finance N-430

Financial Management I

Prerequisite: Finance N-315. A study of the role and responsibility of the senior financial officer

in the achievement of current control through operational finance. A variety of case studies is used to encourage the student to develop a critical approach to the subject. (half course)

NOTE: Students who have credit for Finance 424 may not take this course for credit.

Finance N-431

Financial Management II

Prerequisite: Finance N-315 and N-340. A study of the role and responsibility of the senior financial officer in the achievement of 'current control' and 'performance review' through operational finance, etc. (half course)

NOTE: Students who have credit for Finance 424 may not take this course for credit.

Finance N-440

Finance Theory I

Prerequisite: Finance N-315. This course will be a study of asset and liability management under conditions of uncertainty. Topics included are: concept of finance, capital and interest, theory of risk and time preferences, capitalization of the income stream, corporate growth and rate of return and capital structure mix. (half course)

NOTE: Students who have credit for Finance 423 or 426 may not take this course for credit.

Finance N-441

Finance Theory II

Prerequisite: Finance N-315 and N-440. This course will be a continuation of Finance N-440 covering such topics as: dividends and the value of the corporation, cost of capital, game theory and liquidity. (half course)

NOTE: Students who have credit for Finance 423 or 426 may not take this course for credit.

Finance N-450

Investment Analysis

Prerequisite: Finance N-315. The examination of the workings of security markets and analytical techniques for the valuation of securities and the appraisal of portfolio management. (half course)

NOTE: Students who have credit for Finance 423 or 427 may not take this course for credit.

Finance N-455

Seminar in Finance

Prerequisite: Finance N-315.

This course is intended primarily for honours or major students and provides an opportunity for more intensive study in one or more specific topics in finance. The topic will vary according to the special interests of the professor and the students. (half course)

NOTE: Students who have credit for Finance 427 may not take this course for credit.

Finance N-460

Financial Intermediaries (National)

Prerequisite: Finance N-315.

Principles of money and credit in their application to the operations of the central bank, chartered banks, and the financial system and markets generally. (half course)

NOTE: Students who have credit for Finance 429 may not take this course for credit.

Finance N-461

Financial Intermediaries (Quebec)

Prerequisites: Finance N-315 and N-460.

A study of the operation of financial institutions in the province of Quebec. (half course)

NOTE: Students who have credit for Finance 429 may not take this course for credit.

MANAGEMENT

Associate Professor and Chairman of the Department

Henry S. Tutsch

Professors

Gunther Brink

Joseph Kelly

John Smola

Associate Professors

Ahmed Ashour

Thomas Kubicek

Assistant Professors

Martin Franklin

Robert Hosein

Peter E. Pitsiladis

Special Lecturer

C. G. Benello

Management N-211

Business Law

A general survey of the law obtaining in the Province of Quebec with special emphasis on the aspects thereof relating to business and commerce. It includes a basic outline of the law of Domicile,

Marriage, Persons, Property, Ownership and its modifications, Successions, Gifts and Wills, Testamentary, Executors, Contracts, Quasi-Contracts, Offences and Quasi-Offences, Privileges, Hypothecs and Prescription, and a more detailed study of the Contracts of Sale, Lease and Hire of

Things and of Work, Mandate, Loan, Deposit, Partnership, Suretyship, Pledge, Insurance, and an outline of the basic law applying to Negotiable Instruments, Corporations, Carriers, Bankruptcy and Winding Up, and Copyrights, Patents and Trade Marks. (full course)

NOTE: Commerce and Administration students may not take this course for credit. Students who have credit for Commercial Law 211 may not take this course for credit.

Management N-213

Foundations of Behaviour I

The purpose of this course is to introduce the student to psychological concepts relevant to the study of organizational problems. Topics include: personality, interpersonal behaviour, group behaviour, perception, attitudes and motivation. (half course)

NOTE: Students who have credit for Psychology 011 or 211 may not take this course for credit.

Management N-214

Foundations of Behaviour II

The purpose of this course is to introduce the student to sociological concepts relevant to the study of organizational problems. The chief concepts to be studied are: role, status, intergroup behaviour, social institutions and culture. (half course)

NOTE: Students who have credit for Sociology 011 or 211 may not take this course for credit.

Management N-215

Research Methodology

This course attempts to give the student an awareness and understanding of the possibilities and limitations of using research methods in a business setting. Topics to be discussed include: the scientific method, experimental design, observational techniques, sources of information and writing the research report. (half course)

Management N-340

Organizational Behaviour I

Prerequisites: Management N-213 and N-214 or equivalent. The general purpose of Organizational Behaviour I and II is to provide the student with the opportunity to use the concepts, findings and techniques of previous behaviour courses as a basis to study organizations as socio-technical systems.

This is a laboratory course in which students are expected to improve their perceptual, analytical and problem solving skills. There are three goals:

- a) to gain an understanding of group processes through role playing and sensitivity training;
- b) to practice diagnosing organizational problems through analysis of cases;

- c) to acquire skill in using diagnosis to plan and influence organizational changes. (half course)

NOTE: Students who have credit for Management 430 may not take this course for credit.

Management N-341

Organizational Behaviour II

Prerequisite: Management N-340. This course will concentrate on the treatment of an organization as a socio-technical system. The central theme will be the measurement of organizational effectiveness and its dysfunctions. (half course)

NOTE: Students who have credit for Management 430 may not take this course for credit.

Management N-345

Production Management

Prerequisite: Quantitative Methods N-244.

The problems of design, selection and planning of operating systems are studied. Operating systems are broadly defined to include manufacturing as well as service organizations. Topics included are: forecasting, plant and warehouse location, facility location and maintenance. (half course)

NOTE: Students who have credit for Management 421 may not take this course for credit.

Management N-346

Scheduling and Control of Production Systems

Prerequisite: Management N-345. Operational problems of operating systems are studied. Topics included are: inventory management, scheduling of intermittent and continuous production, production line balancing, quality control, project management. (half course)

NOTE: Students who have credit for Management 421 may not take this course for credit.

Management N-368

Social Aspects of Enterprise

Prerequisite: Third year standing in any faculty. The purpose of this course is to facilitate understanding of the impact of social, economic, political and ethical environment on the process of managerial decision-making. Consideration is given to the conceptual foundations of business including the business corporation, its function and the legitimacy of its power structure. (half course)

NOTE: Students who have credit for Management 451 may not take this course for credit.

Management N-369

Canadian Business and its Environment

Prerequisite: Management N-368. The purpose of this course is to examine the functioning of Canadian business and its relationships with its public, including stock-holders, consu-

mers, employees, labour, community and government. Major contemporary issues such as the impact of technology on people and the physical environment are examined. (half course)

NOTE: Students who have credit for Management 451 may not take this course for credit.

Management N-460

Business Policy I

Prerequisites: Finance N-315, Marketing N-301, Management N-341 and N-346. This course, together with Business Policy II, is a terminal course designed to integrate the learning of the three-year program. The emphasis will be on the process by which top management defines products, designates markets, and market segments together with the channels through which they are to be resolved, determines the means by which they are to be reached, and the means by which operations are to be financed, as well as the size and kind of organization which is to achieve these activities - the process of strategy formulation by the organization. The purpose of instruction is to develop in students a global view of the organization rather than a specialist, departmental orientation. Cases will be used extensively, and drawn from widely diversified industries. (half course)

NOTE: Students who have credit for Management 453 may not take this course for credit.

Management N-461

Business Policy II

Prerequisite: Management N-460. This course will concentrate on how the strategy formulated in Business Policy I will be implemented by the organization. Organization structures will be studied in differing environments. The relationships between organization structures and the organization's strategy will be analyzed. The problems encountered by general managers, as well as middle managers, in the process of the implementation of the set policies will be studied. (half course)

NOTE: Students who have credit for Management 453 may not take this course for credit.

Management N-462

Personnel Management I

Prerequisite: Management N-341. The aim of this course is to provide a sound background in fundamentals, theory, principles and practice of personnel management. It will focus on the philosophies underlying current personnel policy and practices. (half course)

NOTE: Students who have credit for Management 432 may not take this course for credit.

Management N-463

Personnel Management II

Prerequisite: Management N-462. The emphasis in this course will be on techniques: recruitment, selection, training, appraisal, and wage and salary administration. (half course)

NOTE: Students who have credit for Management 432 may not take this course for credit.

Management N-464

Labour and Industrial Relations I

Prerequisite: Management N-340 and N-341.

Labour relations is a survey course designed to provide a practical and comprehensive approach to the state of labour-management relations in Canada. (half course)

NOTE: Students who have credit for Management 433 may not take this course for credit.

Management N-465

Collective Bargaining and Industrial Relations II

Prerequisite: Management N-464. This course is designed to help the student to look at day-to-day problems connected with negotiation and administration of collective bargaining agreements. The course puts some stress on the behavioural aspects of industrial relations. (half course)

NOTE: Students who have credit for Management 433 may not take this course for credit.

Management N-466

Management Theory I

Prerequisite: Management N-340 and N-341.

This is an introductory course in management theory in which the student will be expected to become thoroughly familiar with management literature, terminology and principles. To this end he will examine the classical, contemporary and emerging theories in order to establish a solid conceptual framework against which management problems and their solutions can be evaluated. (half course)

NOTE: Students who have credit for Management 452 may not take this course for credit.

Management N-467

Management Theory II

Prerequisite: Management N-466. This course will attempt to further develop the conceptual framework which was established in Management Theory I. To this end it will examine selected management concepts and appraise their value in terms of their application to the actual practice of business. Issues such as the effect of innovation and technological change, managing the knowledge worker, organization planning and comparative management will be considered. (half course)

NOTE: Students who have credit for Management 452 may not take this course for credit.

Management N-475**Business Law**

The purpose of this course is to examine and correlate through a functional approach the essential nature, source and meaning of the principles and rules governing business activity. more particularly commercial contracts. A detailed examination of the Quebec provincial and Canadian federal laws relating to business transactions. including persons and property, ownership, contracts in general, and the special contracts of agency, lease of real estate and moveables, bills of exchange. (half course)

NOTE: Students who have credit for Management 211 may not take this course for credit.

Management N-476**Business Law**

Prerequisite: Management N-475. The purpose of this course is to examine the legal framework of the Canadian business organization and important areas of law relating thereto, including partnership and company law, securities regulations, loans and hypothecs, bankruptcy, insurance, carriers, anti-combines, fair employment and consumer protection legislation. (half course)

NOTE: Students who have credit for Management 211 may not take this course for credit.

MARKETING

Associate Professor and Chairman of the Department
Vishnu Kirpalani
Professor
Bruce Mallen
Associate Professors
Kailash C. Dhawan

George S. Lane
Assistant Professors
Ronald H. Rotenberg
Harold Shaffer, Director of
the School of Retailing
R.W. Sweitzer

Marketing N-213**Marketing and Society (Introductory)**

Prerequisites: Economics N-209 and N-210 or N-212, Management 213 and 214 previously or concurrently. An analytical, non-managerial course designed to foster understanding of why marketing, a distinctly human phenomenon, exists, the role of exchange in social intercourse, and the interrelationships among the environment, man and the economic, legal and social institutions he creates to facilitate the consummation of transactions. (half course)

NOTE: Students who have credit for Marketing 211 and/or Marketing 411 or Marketing 421 may not take this course for credit.

Marketing N-350**Marketing Management**

Prerequisites: Accountancy N-214 and Marketing N-213. An analytical course wherein the student utilizes the concepts, tools and practices used by managers in planning, establishing policies and solving marketing problems. (half course)

NOTE: Students who have credit for Marketing 211 and/or Marketing 411 or Marketing 421 may not take this course for credit.

Marketing N-352**Buyer Behaviour**

Prerequisites: Marketing N-213, Management N-

213 and N-214 and Quantitative Methods N-243 and N-244. This course analyzes the motivations, roles and behaviour of the industrial buyer and the consumer, how he and she are affected by economic, social and cultural influences, and how the marketer may model this behaviour for decision-making purposes. (half course)

NOTE: Students who have credit for Marketing 431 may not take this course for credit.

Marketing N-402**Marketing Intelligence**

Prerequisites: Marketing N-350 and Marketing N-352. The nature and scope of marketing research methods of obtaining internal and external data, the design and use of marketing information systems, analysis of data, the preparation and evaluation of marketing research reports. (half course)

NOTE: Students who have credit for Marketing 412 or Marketing 451 may not take this course for credit.

Marketing N-403**Marketing Communications**

Prerequisites: Marketing N-350 and Marketing N-352. This course analyzes the process of communication from seller to buyer, the theories, strategies and roles of opinion formation, attitude change and persuasion, and the effects of different

sources, media and messages upon both consumers and intermediate buyers. (half course)
NOTE: Students who have credit for Marketing 431 may not take this course for credit.

Marketing N-452

Marketing Research

Prerequisite: Marketing N-402 previously or concurrently. The application of marketing research to problem areas such as advertising, sales management and product strategy. Alternative research designs are applied to actual problems. (half course)

NOTE: Students who have credit for Marketing 412 or Marketing 451 may not take this course for credit.

Marketing N-453

Advertising and Sales Promotion Management

Prerequisite: Marketing N-403 or concurrent registration. The course deals with the theory and practice of advertising and sales promotion. Through case studies, field trips and simulations the student learns how to analyze media and budgets, plan promotional campaigns, utilize research findings and evaluate advertising effectiveness. (half course)

NOTE: Students who have credit for Marketing 221 and/or Marketing 222 or Marketing 431 may not take this course for credit.

Marketing N-454

Sales Management

Prerequisite: Marketing N-403 previously or concurrently. The course deals with the theoretical and applied aspects of the management of personal selling. Through cases, simulations and special presentations the student learns how to recruit, select, train, organize, motivate, evaluate, compensate, supervise and control the sales force. (half course)

NOTE: Students who have credit for Marketing 414 or Marketing 461 may not take this course for credit.

Marketing N-462

Multinational Marketing Management

Prerequisites: Marketing N-350 and Marketing N-352. In this course the student analyzes the major forms of international marketing; the impact of differing environments upon marketing policies and strategies; the segmentation of multinational markets; the development of international channel systems; the roles of marketing in developing countries, in communist countries and in integrated markets and trade blocs. (half course)

Marketing N-463

Retail Management

Prerequisites: Marketing N-350 and Marketing N-352. This course seeks to apply the theories of marketing and administration to the retail situation. Topics to be covered include site selection for single and multi-unit retail outlets, organizing and staffing the retail operation, the wholesaler-retailer relationship, consumer behaviour in the retail situation. The impact of such new developments as consumer cooperatives, franchising, discounting and computer technology on the future of retailing will also be considered. (half course)
NOTE: Students who have credit for Marketing 481 may not take this course for credit.

Marketing N-464

Consumerism

Prerequisites: 2 semester courses in Marketing. The current evolution of marketing and consumerism is subjected to critical evaluation and analytical review. Problem areas which may be examined include marketing costs and efficiency, the social objectives of and objections to marketing, the impact of marketing on the environment, the "pollution of advertising", ethics of marketers, and the role of government in the market place. (half course)

Marketing N-485

Industrial Marketing

Prerequisite: Marketing N-350 and N-352. Products and services to other industrial customers are studied, first at the technical representative and selling level, then at the product manager and new products development level, and finally at the level of industrial marketing management. (half course)

Marketing N-490

Marketing Policy

Prerequisites: Marketing 350 and 352. A capstone course in Marketing, utilizing readings, projects and selected case studies requiring the student to incorporate concepts and techniques of previous marketing courses in determining marketing policy. (half course)

Marketing N-491

Special Projects Seminar

Prerequisite: Permission of the Department. Individual study or special project in marketing field. (half course)

QUANTITATIVE METHODS

*Professor and Acting Chairman
of the Department*

Andrew Berczi
Associate Professors
Dale D. Doreen
G. Pederzoli
Zoltan G. Popp
Eric N. West

Assistant Professors

Clarence Bayne
L. A. Smith
Roland O. Wills
Sessional Lecturer
Lynn Verchere

Quantitative Methods N-243**Introductory Business Statistics**

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus, or equivalent. An introductory course in business statistics which includes: descriptive measures; index numbers; frequency distribution analysis; probability theory; theoretical discrete and continuous distributions; point and confidence interval estimation; elementary hypothesis testing. Applications in administration and management will be emphasized. (finance, marketing, etc.) Lectures and lab. (half course)

NOTE: Students who have credit for Mathematics 241, Statistics 242, Q.M. 242, may not take this course for credit.

Quantitative Methods N-244**Introductory Business Statistics II**

Prerequisite: Q.M. N-243 or equivalent. This course is an extension of Q.M. N-243 which includes simple linear regression and correlation analysis, elementary forecasting and smoothing techniques, time series analysis, elementary sampling theory, acceptance sampling, quality control, and introduction to variance analysis. Applications in administration and management will be emphasized (finance, marketing, etc.). Lectures and lab. (half course)

NOTE: Students who have credit for Statistics 242 or Q.M. 242 may not take this course for credit.

Quantitative Methods N-313**Managerial Operations Research I**

Prerequisites: Q.M. N-243 and N-244, or equivalent. This course is an introduction to managerial operations research and its role and function in executive decisions. The basic areas covered include: optimization concepts and model building; decision theory (matrix and decision tree approach); game theory; utility theory; allocation theory (assignment and transportation problems); linear programming and applications. (half course)

NOTE: Students who have credit for Quantitative

Methods 411 or Quantitative Analysis 411 may not take this course for credit.

Quantitative Methods N-314**Managerial Operations Research II**

Prerequisite: Quantitative Methods N-313 or equivalent. This course is an extension of Quantitative Methods N-313. The basic areas covered include: inventory theory and control; simulation (deterministic and stochastic); sequencing and scheduling models; network theory (CPM and PERT); and applications of Markov Chains. (half course)

NOTE: Students who have credit for Quantitative Analysis 411 or Quantitative Methods 411 may not take this course for credit.

Quantitative Methods N-353**Mathematical Analysis for Business - Calculus**

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus or equivalent. The various applications of differential and integral calculus and the use of difference and differential equations in the functional areas of management, e.g. production, marketing, accounting, and finance, personnel administration, and purchasing will be studied. (half course)

NOTE: Students who have credit for Mathematics 415 may not take this course for credit.

Quantitative Methods N-354**Mathematical Analysis for Business - Matrix Algebra**

Prerequisites: One CEGEP course in each of Intermediate Algebra and Calculus or equivalent. Properties and applications of matrix algebra in the functional areas of management, e.g. production, marketing, accounting and finance, personnel administration and purchasing, will be studied. Special applications (e.g. Input-Output Analysis) will be explored. (half course)

NOTE: Students who have credit for Mathematics 415 may not take this course for credit.

Quantitative Methods N-415**Managerial Operations Research - Advanced**

Prerequisites: Quantitative Methods N-313 and

N-314, or equivalent. In this course more advanced operations research techniques are presented with special reference to their applicability to managerial decision-making. The topics include: mathematical programming (linear, non-linear, integer and dynamic); queuing theory (analytical and simulated solutions); maintenance and replacement problems. The course will make generous use of relevant cases and will require computer applications using the real time computer terminal facilities of the university. The emphasis is on the development of the quantitative problem solving ability of the student with special regard to practical applications in production, marketing, accounting and finance, personnel administration, purchasing, etc. (half course)

NOTE: Students who have credit for Quantitative Methods 412 may not take this course for credit.

Quantitative Methods N-423

Computers and Data Processing

Prerequisite: Computer Science N-211 or equivalent. This course provides an introduction to business data processing. It introduces the Common Business Oriented Language (COBOL) and concentrates on mass storage characteristics and techniques with special reference to file organization and design. Basic business applications (e.g. accounts receivable, inventory, payroll, forecasting) will be studied. (half course)

NOTE: Students who have credit for Quantitative Methods 421 may not take this course for credit.

Quantitative Methods N-424

Data Processing Systems and Applications

Prerequisite: Computer Science N-211 or equivalent. This course will survey and study the various currently available data processing systems and their applications (e.g. time sharing, real time, multi-programming and multi-processing, data communications, computer utilities). The selection and evaluation of both hardware and software will be discussed. This is an appreciation course oriented towards the potential user. (half course)

NOTE: Students who have credit for Quantitative Methods 421 may not take this course for credit.

Quantitative Methods N-425

Business Systems Analysis and Design

Prerequisite: Computer Science 211 or equivalent. This is an introductory course in business systems theory. It will study the various characteristics and nature of business systems. System components and input-processing-output relationships will be examined and the methodology and techniques of systems design and analysis will be explored. (half course)

NOTE: Students who have credit for Quantitative Methods 422 may not take this course for credit.

Quantitative Methods N-426

Business Systems Simulation and Control

Prerequisite: Computer Science N-211, Quantitative Methods N-244, Quantitative Methods N-314; or equivalent. Digital simulation of stochastic and deterministic business sub-systems will be studied and executed in FORTRAN: various other simulation languages and models will be reviewed and evaluated; large scale simulation models (total system approach) and computer oriented management planning and control models will be examined. (half course)

NOTE: Students who have credit for Quantitative Methods 422 may not take this course for credit.

Quantitative Methods N-433

Topics in Quantitative Methods

Prerequisite: Permission of the Department. This course is intended primarily for honours or major students, and affords an opportunity for more intensive examination of one or more particular topics in quantitative methods. The specific subject will vary according to the special interest of the professor offering the course in any given year. (half course)

Quantitative Methods N-445

Advanced Business Statistics - Statistical Estimation

Prerequisites: Quantitative Methods N-243, and Quantitative Methods N-244, or equivalent.

This course deals with multivariate analysis and sampling theory as applied to business and economic problems. It is expected that the students acquire a good working knowledge of these techniques through extensive use of the Quantitative Methods laboratory facilities. The course content includes: linear and non-linear multiple regression and correlation analysis; exponential smoothing, and advanced forecasting techniques; advanced sampling theory. Applications will deal with problems in the functional areas of management, e.g., production, marketing, accounting, finance, personnel administration, and purchasing. (half course)

NOTE: Students who have credit for Quantitative Methods 442 may not take this course for credit.

Quantitative Methods N-446

Advanced Business Statistics - Statistical Analysis

Prerequisites: Quantitative Methods 243 and Quantitative Methods 244, or equivalent.

This course is complementary to Quantitative Methods 445. It will deal with various topics in statistical analysis applied to business and economic problems. The areas of application are essentially production, marketing, accounting and finance, personnel administration, and purchasing. It includes: analysis of variance; design of

experiments; non-parametric statistics and introduction to factor analysis. (half course)
NOTE: Students who have credit for Quantitative Methods 442 may not take this course for credit.

COMPUTER SCIENCE

Some courses in Computer Science are available as electives to Commerce students.

FINE ARTS

The following course in Fine Arts is available to Commerce students.

Theatre Arts N-340

Theatre Administration

A course in theatre administration covering office and plant management, production, touring, and prepackaged plant costing; contracts, insurances, budgeting and seasonal planning. Lectures with actual case studies in depth. (full course)

ADDITIONAL COURSES OF STUDY

The following courses, administered by the Continuing Education office on behalf of the Faculty of Commerce and Administration, are offered to meet the needs of various business organizations. They do not carry credit towards the Bachelor of Commerce degree.

Students must consult the time-table to determine which of the following courses are offered in the current academic year.

Business N-221 (221) (non credit)

Office Management

A course in the principles of office management, including such topics as the function of the office in business; organization and principles of control; office systems and routines; office equipment and labour saving devices; office planning and layouts; selection and training of office personnel; office communications. (full course)

NOTE: This course was previously designated as Administration 221. Students who have taken Administration 221 should not take this course.

Business N-222 (222) (non credit)

Procurement Principles

This course is designed to cover the fundamentals of purchasing policies and procedures and the organization and functions of the purchasing

department in business and industry. Topics covered will include pricing, negotiation, quality and quantity determination, budgetary institutions, etc., as well as the relationship between purchasing and other management functions. Class discussion and case studies are the basic method of study employed. (full course)

NOTE: This course was previously designated as Administration 442 and 443. Students who have taken Administration 442 and/or 443 should not take this course.

Business N-223 (223) (non credit)

Business Systems

This course is designed primarily for students with practical business experience, managers, and potential systems men. It provides a panoramic view of the systems tools, techniques and equipment and relates them to practical situations arising in an enterprise in this age of change. Topics covered include: translation of management objectives into business systems, procedures and methods; organization planning; fact finding and related tools such as flow charting, work measurement, information requirement studies; selling, implementation and management of system and organization changes including planning, presentation and documentation tools such as a critical path scheduling, decision table construction, procedure writing, project control techniques; information gathering, processing, distribution and retention equipment from simple office machines to computers. (full course)

NOTE: This course was previously designated as Executive Training 441 and 442. Students who have taken Executive Training 441 and/or 442 should not take this course.

Business N-241 (241) (non-credit)

International Trade

The fundamental and practical aspects of importing and exporting, covering such subjects as trade terms and definitions, import and export regulations; export credits insurance; customs regulations; handling of export traffic; trading documents; air cargo and air express; marine insurance; financing. (half course)

NOTE: This course was previously designated as Marketing 241. Students who have taken Marketing 241 should not take this course.

Business N-251 (251) (non-credit)

Transportation and Traffic (Introductory)

This course in freight traffic management is primarily for students who wish to specialize in this line of endeavour. It covers the practical aspects of transportation in Canada including such matters as bills of lading and shipping procedures; special services of railways; express; claims and claims

preventions; freight contracts; marine insurance; customs; interpretation of the railway act and railway law. (full course)

NOTE: This course was previously designated as Marketing 251. Students who have taken Marketing 251 should not take this course.

Business N-252 (252) (non-credit)

Transportation and Traffic (Advanced)

Prerequisite: Business 251. This course in freight traffic management is primarily for students who wish to specialize in this line of endeavour. It covers the practical aspects of transportation in Canada including such matters as tariff construction and freight rate structures; condition of carriage; ocean freight contracts; marine insurance; customs; interpretation of the railway act and railway law. (full course)

NOTE: This course was previously designated as Marketing 252. Students who have taken Marketing 252 should not take this course.

Business N-260 (non credit)

Basic Mathematics for Business

Review of elementary algebraic operations; fractions, ratios, proportions, percentages, simple equations, arithmetic and geometric progressions, logarithms; graphical algebra; simple and compound interest; annuities, amortization and sinking funds, depreciation and bond values; simple business statistics including: the collection of statistical data, various methods of presentation including tables and graphs, the frequency distribution and its mathematical analysis including averages, measures of dispersion, measures of skewness, normal curve, and correlation. (full course)

SPECIAL CERTIFICATE PROGRAMS

There are many organizations within the business community designed to serve the needs of people working in specialized areas of business. These organizations recognize that the educational qualifications of those seeking membership must be continually upgraded. Therefore, they sponsor an Academic Certificate which may be obtained through correspondence courses or through a lecture program.

The Faculty of Commerce and Administration co-operates with these business organizations by permitting personnel to register as partial students, and to take courses leading to a certificate to be awarded by the organization concerned.

Students must comply with the university regulations regarding dates of application and partial student entrance requirements as outlined in the university announcement. In addition to this, they must meet the requirements of the specific organization.

The credit courses taken may be applied towards the Bachelor of Commerce degree provided the student meets the admission requirements and wishes to transfer from partial status to undergraduate status after completing a certificate program. Students are advised that they must meet the Bachelor of Commerce curriculum requirements in force at the date of transfer.

Each certificate program has one or more special courses required to complete the program. These courses do not carry credit toward a Bachelor's degree and are designated as non-credit courses.

Students interested in the following certificate programs will obtain details of required courses from the organization concerned:

The Administrative Management Society
(Montreal Chapter) Inc.

The Montreal Personnel Association

The American Marketing Association (Montreal Chapter)

The Canadian Association of Purchasing Agents
(Montreal Division)

Data Processing Management Association
(Montreal Chapter)

The Systems and Procedures Association of America,
(Montreal Chapter)

The following organizations suggest that students take certain courses at this university as preparation for their uniform final examinations:

The Society of Industrial and Cost Accountants
of Quebec

Association of Certified General Accountants
(Quebec Division)

Association of Chartered Institute of Secretaries
(Quebec Division)

COMMERCE & ADMINISTRATION CONSULTATIVE COMMITTEE

The purpose of this committee is the maintenance of a continuing and constructive relationship and dialogue between the Faculty of Commerce and Administration and a broadly representative group of senior business executives. In this way the relevance of the work of the Faculty to the needs of the business community is kept under review, while the objectives, role and accomplishments of the Faculty and the qualifications of its graduates are made better known in business circles.

The personnel of the Committee comprises senior members of the business community, senior faculty representatives and also representatives of student organizations.

Chairman

William T.G. Hackett, Special Lecturer.
Department of Finance

Business

Phillip P. Aspinall, Partner, McDonald Currie & Co.
Rupert B. Carleton, Vice-President and General Counsel, Cemp Investments Limited
Jacques Cartier, Vice-President, Marketing, Petrofina Canada Limited
F.E. Case, Chairman and Chief Executive Officer, Montreal Trust Company
Michel Cloutier, Vice-President Administrative Services, Bombardier Limited
G.G. Dunnigan, Vice-President, Marketing, Northern Electric Distribution Co. Limited
A. Fisher, President, F.B.I. Foods Limited
Walter J. McCarthy, Senior Vice-President, Finance, Sun Life Assurance Company of Canada
H.S. McEvoy, Vice-President, Extruded and Building Products, Alcan International Limited
Fred H. McNeil, Executive Vice-President and General Manager, Bank of Montreal

Ronald H. Perowne, President, Dominion Textile Limited

R.P. Regimbal, President, Johnson & Johnson Limited

The Hon. Maurice Sauve, P.C., Vice-President Administration, Consolidated-Bathurst Limited
David E. Sloan, Treasurer, Canadian Pacific Limited

H. Arnold Steinberg, Executive Vice-President, Administration and Finance, Steinberg's Limited

Nicholas Takacsy, Vice-President and Director, Greenshields Incorporated

Orland Tropea, Vice-President, Regulatory Matters, Bell Canada

Faculty

Andrew Berczi, Dean of the Faculty of Commerce & Administration and Acting Chairman, Department of Quantitative Methods

Gunther Brink, Professor, Department of Management

James G. Finnie, Chairman, Department of Accountancy

Michael Kawaja, Associate Professor, Department of Finance

Vishnu H. Kirpalani, Chairman, Department of Marketing

George S. Lane, Chairman, Undergraduate Curriculum Committee

Bruce Mallen, Chairman, Graduate Studies

Calvin C. Potter, Chairman, Department of Finance

Henry S. Tutsch, Chairman, Department of Management

Roland O. Wills, Assistant Professor, Department of Quantitative Methods

Students

Kent Elvidge, President, Commerce Students Association

Werner Pluss, President, M.B.A. Students Association

Hubert Prescod, Commerce Representative, Evening Students Association

Faculty of Engineering

Faculty of Engineering

Dean

J. Clair Callaghan

*Vice-Principal (Academic) and
Professor of Engineering*

Jack Bordan

*Assistant Dean, Undergraduate Studies
Engineering & Computer Science*

F. Douglas Hamblin

Assistant Dean, Graduate Studies

Engineering & Computer Science

J. Charles Giguère

Assistant to the Dean

George D. Xistris

Programs leading to the degrees of Bachelor of Engineering and Bachelor of Computer Science are offered in the Faculty of Engineering. The requirements for the two degrees are different and the appropriate section in the following pages must be consulted for each.

Bachelor of Engineering Program Admission Requirements

General Admission requirements are listed on page 34.

Specific requirements are those contained in the CEGEP pre-Engineering profile or the equivalent in university collegial programs, that is:

Sir George Williams University	CEGEP
Biology 001.....	301
Chemistry 001.....	101
002.....	201
Mathematics 002.....	101
003.....	103
004.....	105
005.....	203
Physics 001.....	101
002.....	201
003.....	301

Applications from graduates of CEGEP technology programs will also be considered. Such applicants admitted to the undergraduate program may be required to take certain special courses in the Evening Division.

Curriculum for the Degree of Bachelor of Engineering

The university offers a program leading to the degree of Bachelor of Engineering in the fields of Civil, Electrical and Mechanical Engineering. To be recommended for the degree of Bachelor of Engineering, students must satisfactorily complete all the General Requirements and all the requirements of the department in which they are registered. The General Requirements are given below and comprise a uniform group of courses, the French Language Requirement and the

Graduation Regulations specified below, as well as the Academic Regulations on page 205; all are common to the three departments. The individual Departmental Requirements are given in subsequent sections. They comprise a group of required courses with a group of elective courses which allow students to select part of their program to provide some depth in an area of specialization according to their particular interests or breadth in the general field of their chosen department.

In their final undergraduate year, students with high standing may be granted permission by their department and the Engineering Graduate Studies Committee to register for a limited number of graduate courses offered by the Faculty in lieu of some courses in the undergraduate program.

A special feature of the program is the early introduction of a "physical systems approach" as a unifying theme, concurrent with a related sequence of laboratory work designed to emphasize a concern for the problems of measurement and associated instrumentation. Undergraduates may elect to follow programs designed to provide modern education in the traditional engineering disciplines, or they may elect to concentrate on systems engineering in considerable depth.

Membership in the Corporation of Engineers of Quebec

The Corporation of Engineers of Quebec, at its council meeting of May 24, 1967, has fully accredited the curricula in Civil, Electrical and Mechanical Engineering offered by Sir George Williams University. The Corporation will admit as members, graduates of these three programs according to clause 17 of the Engineers Act and clauses 3A and 3B of the Corporation's By-Laws.

Accreditation by the Canadian Council of Professional Engineers

The Accreditation Board of the Canadian Council of Professional Engineers, as of February 14, 1969, accredited the curricula in the Departments of Civil, Electrical and Mechanical Engineering. The Board has recommended to the Constituent

Associations of CCPE that graduation from the above curricula be considered as sufficient academic qualification for purposes of registration as a Professional Engineer in all Provinces & Territories in Canada. With the exception of New Brunswick and Saskatchewan, it has been confirmed that the programs are so recognized by the Councils of the Provincial Engineering Associations and the recommendation is being considered by the Associations in New Brunswick and Saskatchewan.

Programs of Study

Successful completion of the B.Eng. degree program requires hard work and considerable dedication on the part of each student. Courses are presented with the expectation of an average of about two hours of "outside" work for each lecture hour and about one-half hour of "outside" work for each hour spent in the laboratory for all programs of study.

Programs of study are available in both the Day and Evening Divisions as described below. Students are subject to the same regulations regardless of their program of study.

(1) Day Division

Normal arrangements in the Day Division allow students' programs to vary such that they can expect to graduate at the end of six to eight terms of successful study after entry with the minimum admission qualifications. In view of the expected average "outside" work load stated above, students must plan their individual programs on the basis of their academic ability and in consultation with the chairman of their department.

Industrial Parallel Studies are available in the Day Division for students who have successfully completed the First Year of the program, or its equivalent, and whose employers are prepared to certify that they will be employed for a maximum of 20 hours per week during Winter Sessions. Priority for Industrial Parallel Studies is given to students who have completed the First Year of the program in the Evening Division. All students undertaking such studies must have been granted permission by the office of the Assistant Dean. Undergraduate Studies from whom the pamphlet *Industrial Parallel Studies*, giving more detailed information, can be obtained.

(2) Evening Division

The program of study in the Evening Division offers an opportunity for part-time study of engineering fundamentals. A limited number of courses is offered annually from those marked

with an asterisk (*) in the lists on pages 169, 171, 172, and 174. Any special courses offered for graduates of CEGEP technology programs admitted to Engineering undergraduate studies will also be offered in the Evening Division. Students will normally register for three courses per term, but they should consider their employment commitments as well as their academic ability in planning their programs.

Evening Division students registered in the B.Eng. program must subsequently transfer to the Day Division to complete the requirements of that degree. Applications for transfer to the Day Division will be considered when the applicant has completed the minimum first year program of the department in which he intends to continue his studies, those approved will become effective at the start of the next Fall term.

General Requirements

Course Requirements

To be recommended for the degree of Bachelor of Engineering, students must satisfactorily complete the following courses as well as those specified by their department, as shown in subsequent sections.

- E Math N-311*** Advanced Calculus & Ordinary Differential Equations
- E Math N-331*** Vector Analysis & Matrix Algebra
- E Math N-351*** Complex Variables
- E Math N-371*** Applied Probability & Statistics
- Engin N-211*** Engineering Graphics
- Engin N-221*** Materials Science
- Engin N-241*** Applied Mechanics
- Engin N-341*** Mechanics of Materials I
- Engin N-351*** Thermodynamics I
- Engin N-371*** Physical Systems & Measurements I
- Engin N-372*** Physical Systems & Measurements II
- Engin N-501** Engineering Economy & Practice
- Engin N-510** Technical Report (1)

Two courses in Social Aspects of Engineering

* Offered in both Day and Evening Divisions

(1) To be submitted at the beginning of the academic year in which the student expects to graduate.

French Language Requirement

All undergraduates registered for the B. Eng. degree are required to pass, or be exempt from, a French language examination at some time prior to graduation. *Foreign stu-*

dents attending the university on a student visa and students whose previous education was conducted in the French language may be exempt from this requirement by applying to the Assistant Dean, Undergraduate Studies.

Examinations will be held in the Fall and Spring terms of each year. It is recommended that students, who do not have sufficient background in the French language take French N-211 during their first year of residence.

Graduation Regulations

Upon the completion of all the requirements for the B. Eng. degree, candidates will be recommended for its award provided they have a cumulative grade point average (cgpa) of at least 1.80. This average will be calculated as the ratio of the sum of the grade points obtained in the complete program followed by the candidate to the total number of courses taken in that program, with the following points being awarded for each grade.

Grade: A	B	C	D	Failing grades (F, Abs, Inc, R)
Points: 4	3	2	1	0

A failing grade in a required course must have been cleared by a passing grade in that course; that is, either an S grade, or a passing grade when repeating the course. A failing grade in an elective course should have been similarly cleared, but a passing grade in a different elective may be used to clear such a failure provided registration in it was approved by the chairman of the department in which the candidate is registered.

In calculating the cgpa, the S grade removes the zero for the failing grade and counts as one point for the course. However, a failing grade not cleared by the S grade is included in the calculation as well as the grade subsequently obtained when repeating the course or taking a substitute elective. Both a repeated course and a substitute elective are counted as additional courses in assessing the total number of courses taken. Failures in supplemental examinations have no effect on the cgpa.

First Year Programs

All undergraduates in the B.Eng. program must satisfactorily complete the courses listed as General Requirements above. The first year program of each department is composed only of such courses, but there are variations between

departments. Undergraduates are admitted to one of the Departments of Civil, Electrical or Mechanical Engineering and the first year programs of each are shown below for students undertaking studies with the expectation of graduating in either six or eight terms. The remaining courses included in the General Requirements are taken in subsequent years.

Students admitted to the programs without previous credit for the equivalent of Computer Science N-211 (Data Processing 901) must complete that course or its equivalent before entering their second year of study in the B. Eng. program.

Department of Civil Engineering

Six-term program	Eight-term program
E Math N-311	E Math N-311
E Math N-331	E Math N-331
E Math N-351	Engin N-211
E Math N-371	Engin N-221
Engin N-211	Engin N-241
Engin N-221	Engin N-341
Engin N-241	Engin N-351
Engin N-341	Engin N-371
Engin N-351	Engin N-372
Engin N-371	
Engin N-372	

Department of Electrical Engineering

Six-term program	Eight-term program
E Math N-311	E Math N-311
E Math N-331	E Math N-331
E Math N-351	E Math N-351
E Math N-371	Engin N-211
Engin N-211	Engin N-221
Engin N-221	Engin N-241
Engin N-241	Engin N-351
Engin N-341	Engin N-371
Engin N-351	Engin N-372
Engin N-371	
Engin N-372	

Department of Mechanical Engineering

Six-term program	Eight-term program
E Math N-311	E Math N-311
E Math N-331	E Math N-331
E Math N-351	E Math N-351
Engin N-211	Engin N-211
Engin N-221	Engin N-221
Engin N-241	Engin N-241
Engin N-341	Engin N-351
Engin N-351	Engin N-371
Engin N-371	Engin N-372
Engin N-372	

Department of Civil Engineering

Associate Professor of Engineering and Chairman of the Department

Paul P. Fazio

Professor of Engineering

M.S. Troitsky

Visiting Professor of Engineering

Z.A. Zielinski

Associate Professors of Engineering

Matthew McC. Douglass

Cedric Marsh

A.S. Ramamurthy

Assistant Professors of Engineering

Alya Benzina

Oscar A. Pekau

Civil Engineering is primarily concerned with the creation of the complex systems of constructed facilities for sound economic growth of the community. In a broad sense, the civil engineer learns to control and modify the environment effectively so as to satisfy the needs and desires of society. His responsibility for design ranges from foundations and superstructures of our common structures such as buildings, bridges, dams, tunnels, wharves, etc., to many unusual structures such as rocket installations, containment vessels for nuclear reactors, supports for radio telescopes, frameworks for aircraft. In addition the civil engineer must concern himself with the engineering aspects of water resources, rivers, harbours, irrigation and drainage; with the disposal of wastes and the control of the quality of air and water; with highways, railroads, airports and other transportation facilities; with measuring, mapping and interpreting the physical conditions of the surface of the earth; and with planning metropolitan areas and constructing and managing their public facilities.

Technical electives in the Department of Civil Engineering are offered in three broad inter-related areas. Suiting their particular professional objectives and aptitudes, students can choose electives to provide some specialization in the following areas:

1. Structural Engineering
2. Water Resources Engineering
3. Transportation Engineering

In each case, a coherent program of scientific, technical and management subjects must be chosen.

The requirements for the award of the B. Eng. degree in the Department of Civil Engineering are shown below.

General Requirements: (see page 169)

Departmental Requirements:

- E Math N-411** Transform Calculus & Partial Differential Equations
- Engin N-212** Introduction to Engineering Design

- Engin N-361*** Fluid Mechanics I
- Engin N-441** Mechanics of Materials II
- Engin N-461** Fluid Mechanics II
- Civ. Eng. N-421** Engineering Materials
- Civ. Eng. N-431** Geology
- Civ. Eng. N-451** Structural Engineering I
- Civ. Eng. N-452** Structural Engineering II
- Civ. Eng. N-461** Hydrology
- Civ. Eng. N-471** Surveying (1)
- Civ. Eng. N-472** Transportation Engineering I
- Civ. Eng. N-531** Soil Mechanics I
- Civ. Eng. N-532** Foundations
- Civ. Eng. N-551** Structural Engineering III
- Civ. Eng. N-561** Hydraulic Structures
- Civ. Eng. N-581** Public Health Engineering I
- Civ. Eng. N-582** Public Health Engineering II

(1) Summer school to be taken before entering second year of study in the Faculty of Engineering.

** Offered in both Day and Evening Divisions.*

Technical electives.

Technical electives will be chosen from the following courses or other undergraduate courses approved by the Chairman of the Department or his representative. Six units must be obtained in either Option S, T or W with at least six from the other Options.

	<i>Elective Units</i>	<i>Option</i>
Engin N-512	3	X
Operations Research		
Engin N-541	3	X
Experimental Stress Analysis		
Civ. Eng. N-533	3	X
Soil Mechanics II		
Civ. Eng. N-552	3	X
Matrix Analysis of Structures		
Civ. Eng. N-553	3	S
Structural Engineering IV		
Civ. Eng. N-554	3	S
Structural Engineering Project		
Civ. Eng. N-562	3	W
Water Resources Engineering I		

	<i>Elective Units</i>	<i>Option</i>		<i>Elective Units</i>	<i>Option</i>
Civ. Eng. N-563	3	W	Civ. Eng. N-572	3	T
Water Resources Engineering II			Transportation Engineering III		
Civ. Eng. N-571	3	T	Civ. Eng. N-573	3	X
Transportation Engineering II			Urban Planning		

Department of Electrical Engineering

*Professor of Engineering and Chairman
of the Department*

M. N.S. Swamy

Professors of Engineering

J. Clair Callaghan

V. Ramachandran

Associate Professors of Engineering

A. Antoniou

B. B. Bhattacharyya

J. Charles Giguère

Wojciech M. Jaworski

James F. Lindsay

Bela A. Lombos

Vaclav Panuska

Assistant Professors of Engineering

Serge A. Gracovetsky

Otto Schwelb

M. Vidyasagar

Adjunct Assistant Professors

I. Kaufman

J. C. Webber

Research Associates

A. Bonhomme

J-C. Girgenti

Post-Doctoral Fellow

K. S. Rao

Electrical Engineering is concerned primarily with energy and information: their conversion, transformation and transmission in the most efficient, convenient and reliable manner. Electric motors and illumination are two aspects of electrical engineering which are easily recognized. The electrical engineer is involved not only in their design, manufacture and application, but also in the original conversion from mechanical, thermal, solar, wind or nuclear energy to electrical form and its transmission to the place where it is required. Another important aspect of electrical engineering is in the field of information processing and transmission, for example telegraph, telephone, radio, television, radar and computers.

The activities of electrical engineers therefore may range from the generation and distribution of massive amounts of power, through information systems, computer science to various inter-disciplinary fields such as bio-medical engineering. Electrical engineers, through their various functions, therefore exert a profound influence on the cultural, social and economic life of a modern society.

The Electrical Engineering program emphasizes the breadth of the field through a series of courses giving a unified treatment of several kinds of physical systems. Towards the end of the program, a student may choose from a broad range of courses, groups which will allow him to obtain either a broad education in electrical engineering or to specialize to some extent in one or two specific areas.

The requirements for the award of the B. Eng. degree in the Department of Electrical Engineering are shown below.

General Requirements: (see page 169)

Departmental Requirements:

E Math N-412	Transform Calculus & Advanced Differential Equations
Engin N-471	Physical System & Measurements III
Engin N-472	Linear Control Systems
Elec. Eng. N-411	Electronics I
Elec. Eng. N-412	Electronics II
Elec. Eng. N-421	Electrical Properties of Solids
Elec. Eng. N-431	Electromechanics I
Elec. Eng. N-441	Linear Network Analysis
Elec. Eng. N-442	Distributed Parameter Systems
Elec. Eng. N-451	Electromagnetic Field Theory
Elec. Eng. N-501	Electrical Engineering Seminar
Elec. Eng. N-521	Semiconductor Physics
Elec. Eng. N-561	Communication Theory

Technical Electives

Technical electives to a total of at least 27.5 elective units will be chosen from the following courses. All elective patterns must be approved by the Chairman of the Department or his representative.

	<i>Elective Units</i>
E Math N-471	3
Introduction to Stochastic Processes	
E Math N-491	3
Numerical Methods in Engineering Systems	
Engin N-361*	3
Fluid Mechanics I	

* Offered in both Day and Evening Divisions

	<i>Elective Units</i>		<i>Elective Units</i>
Engin N-511	4	Elec. Eng. N-532	3.5
Computer Organization & Software		Generalized Machine Theory	
Engin N-512	3	Elec. Eng. N-541	3
Operations Research		Introduction to Active Networks	
Engin N-571	4	Elec. Eng. N-542	3
Time Varying & Non-Linear Systems		Digital Filters	
Engin N-572	4	Elec. Eng. N-543	3
Optimal Control		Topics in Network Theory	
Engin N-573	4	Elec. Eng. N-551	3.5
Control System Design		Lasers and Masers	
Engin N-574	4	Elec. Eng. N-552	3.5
Digital Computers in Systems		Microwave Engineering	
Elec. Eng. N-432	4	Elec. Eng. N-562	3
Electromechanics II		Statistical Communication Theory	
Elec. Eng. N-511	4	Elec. Eng. N-581	3
Electronics III		Electrical Engineering Project	
Elec. Eng. N-512	3	Comp. Sci. N-421	3
Design of Logic & Switching Circuits		Introduction to the Theory of Automata	
Elec. Eng. N-522	3.5		
Semiconductor Devices Design			
Elec. Eng. N-531	3.5		
Electrical Power System Engineering			

Department of Mechanical Engineering

*Professor of Engineering and Chairman
of the Department*

M. P. du Plessis

Professors of Engineering

Norman F. Jennings

Hugh J. McQueen

Associate Professors of Engineering

Frederick B. Blader

Richard M. H. Cheng

F. Douglas Hamblin

Clyde C.K. Kwok

M. O. M. Osman

Thiagas S. Sankar

George D. Xistris

Visiting Research Assistant Professor

Sui Lin

NRC Adjunct Professor

W. Hayes

Research Associate

N. Suresh

As in all branches of professional engineering, the mechanical engineer is concerned with the creation of devices, systems, structures and processes for human use. His task is to apply scientific, mathematical, economic and social knowledge to satisfy specific needs. The services required of mechanical engineers encompass a very wide range of professional activity, such as design, research, development and management carried out in environments of equally diverse nature, such as industry, medicine, private practice, university and government.

Representative fields of endeavour for mechanical engineers include all forms of power-generating equipment (steam, internal combustion, nuclear, jet, rocket, fuel cells), the design of mechanisms and machines, controls and automation, vibration analysis, environmental control (heating, ventilation and refrigeration), materials handling and precision measurement.

Any of the specific fields may involve the design, construction and control of machines and equip-

ment as well as the research and development of new processes, materials and techniques.

In view of the very wide range of activities in the field, the mechanical engineering curriculum consists of a combination of core courses with a series of technical electives. Strong emphasis is given to building on the principles presented in the basic engineering science and physical systems courses of the General Requirements. Further core courses are taken by all mechanical engineering undergraduates and deal with topics basic to the field, including control theory, thermodynamics, fluid mechanics, heat transfer, machine design and metallurgy. Technical electives allow students to obtain some specialization in a particular area of the field, depending on their interests and expected future professional activity. Three general areas of specialization are available, namely conventional mechanical engineering which emphasizes thermal fluid power, (Option A), design and production engineering, (Option B),

and electro-mechanical systems, including control systems, (Option C).

The requirements for the award of the B. Eng. degree in the Department of Mechanical Engineering are shown below.

General Requirements (see page 169)

Departmental Requirements:

E Math N-411	Transform Calculus & Partial Differential Equations
Engin N-212	Introduction to Engineering Design
Engin N-361*	Fluid Mechanics I
Engin N-441	Mechanics of Materials II
Engin N-461	Fluid Mechanics II
Engin N-471	Physical Systems & Measurements III
Engin N-472	Linear Control Systems
Elec. Eng. N-431	Electromechanics I
Mech Eng. N-421	Heat Treatment of Metals
Mech Eng. N-422	Mechanical Properties of Metals
Mech Eng. N-441	Kinematics of Mechanisms
Mech Eng. N-442	Dynamics of Machines
Mech Eng. N-451	Thermodynamics II
Mech Eng. N-452	Heat Transfer I
Mech Eng. N-541	Machine Design I

* Offered in both Day and Evening Divisions.

Technical electives.

Technical electives to a total of at least 17 elective units will be chosen from the following courses from within the same Option, A, B or C. All elective patterns must be approved by the Chairman of the Department or his representative.

	<i>Elective Units</i>	<i>Options</i>
Engin N-511	4	B, C
Computer Organization & Software		
Engin N-512	3	B
Operations Research		
Engin N-541	3	B
Experimental Stress Analysis		
Engin N-571	4	B, C
Time Varying & Non-Linear Systems		
Engin N-572	4	C
Optimal Control		
Engin N-573	4	C
Control System Design		
Engin N-574	4	B, C
Digital Computers in Systems		
Elec. Eng. N-411	4	A, B, C
Electronics II		

	<i>Elective Units</i>	<i>Options</i>
Elec. Eng. N-412	4	C
Electronics II		
Elec. Eng. N-432	4	A, C
Electromechanics II		
Mech Eng. N-521	3	B
Manufacturing Processes		
Mech. Eng. N-542	1.5	B
Machine Design II		
Mech Eng. N-543	4	A, B, C
Mechanical Vibrations		
Mech Eng. N-551	4	A, C
Thermodynamics III		
Mech Eng. N-552	4	A, C
Heat Transfer II		
Mech Eng. N-553	3	A
Environmental Control		
Mech Eng. N-554	3	A
Thermodynamics IV		
Mech Eng. N-561	4	A
Gas Dynamics		
Mech Eng. N-562	3	A
Fluid Machinery		
Mech Eng. N-581	3	A, B, C
Design or Experimental Project		

Bachelor of Computer Science Program

Admission Requirements

General Admission requirements are listed on page 34.

Specific requirements are the CEGEP-level courses listed below, or the equivalent in university collegial programs.

Sir George Williams University	CEGEP
Mathematics 002.	101
003.	103
004.	105
005.	203

In addition, the following specific requirements exist for the various Options, and applicants are required to indicate their choice of Option in their application.

(1) The General Science and the Electronics/Systems Options:

Sir George Williams University	CEGEP
Biology 001.	301
Chemistry 001.	101
002.	201
Physics 001.	101
002.	201
003.	301

(2) The General Business Option:

Sir George Williams University CEGEP
Mathematics 006. 205

NOTE: It is highly desirable that students have credit for Data Processing 901, or its equivalent, before undertaking study in any of the three Options. However, applicants not having this credit will be considered, but are strongly advised to obtain it before entering the undergraduate program, possibly during the summer in which their application is under consideration.

Curriculum for the Degree of Bachelor of Computer Science

The university offers a program leading to the degree of Bachelor of Computer Science with three Options, namely General Science, Electronics/Systems and General Business. To be recommended for the degree of Bachelor of Computer Science, students must satisfactorily complete an approved program of 15 full-course credits. Of this total, the equivalent of seven full-course credits must be obtained from the core requirements specified below while the remainder must be obtained from courses specified for one of the three Options.

The degree is awarded with honours to those candidates who have obtained at least a B average with no grade below C in a program including:

- (1) one full-course credit in Computer Science courses outside the core courses of the program and
- (2) five full-course credits in approved Mathematics courses.

Programs of Study

Programs of study are available in both the Day and Evening Divisions as described below.

(1) Day Division

The courses of all Options are offered in the Day Division and students can complete the degree requirements in three years of study by taking the normal load of five full-course credits per year.

(2) Evening Division

The courses of the General Science and General Business Options are all offered in the Evening Division, allowing the completion of the degree requirements in that Division. However, as the Electronics/Systems Option includes courses offered only in the Day Division in the Bachelor of Engineering program, students must transfer to the Day Division to complete their last two years of study in that Option. Courses offered in the Evening Divisions are marked with an asterisk (*) in the following lists.

Course Requirements

To be recommended for the degree of Bachelor of Computer Science, students must satisfactorily complete the following core courses as well as those specified below for their chosen Option.

- Comp. Sci. N-220*** Introduction to Discrete Structures
- Comp. Sci. N-221*** Introduction to Assembly Language Programming
- Comp. Sci. N-222*** Introduction to Business Programming
- Comp. Sci. N-301*** Computer Organization
- Comp. Sci. N-302*** Computer Operating Systems
- Comp. Sci. N-310*** Intermediate Scientific Programming
- Comp. Sci. N-312*** Data and File Structures I
- Comp. Sci. N-413*** Data and File Structures II
- Comp. Sci. N-491*** Computer Science Project

One half-course credit in Numerical Calculus*.

An additional one and one-half course credits in Computer Science*.

General Science Option

In addition to the core courses shown above, the following courses must be completed satisfactorily.

- Mathematics N-241*** Introductory Mathematical & Applied Statistics
- Mathematics N-261*** Advanced Calculus
- Mathematics N-281*** Linear Algebra I

Electives:

An additional one half-course credit in Computer Science*.

Four and one-half course credits from the Natural or Social Sciences*.

Electronics/Systems Option

In addition to the core courses shown above, the following courses must be completed satisfactorily.

- E Math N-311*** Advanced Calculus & Ordinary Differential Equations
- E Math N-331*** Vector Analysis & Matrix Algebra
- E Math N-351*** Complex Variables
- E Math N-371*** Applied Probability & Statistics
- E Math N-411** Transform Calculus & Partial Differential Equations
- Engin N-371*** Physical Systems & Measurements I

* Offered in both Day and Evening Divisions

Engin	N-372*	Physical Systems & Measurements II
Engin	N-472	Linear Control Systems
Engin	N-574	Digital Computers in Systems
Elec. Eng.	N-411	Electronics I
Elec. Eng.	N-412	Electronics II
Elec. Eng.	N-441	Linear Network Analysis
Elec. Eng.	N-511	Electronics III
Elec. Eng.	N-512	Design of Logic & Switching Circuits

Electives:

Two half-course credits chosen from the following.

Comp. Sci.	N-340*	Special Purpose Computer Systems
Engin	N-471	Physical Systems & Measurements III
Engin	N-571	Time Varying & Non-Linear Systems
Engin	N-572	Optimal Control
Elec. Eng.	N-542	Digital Filters
Elec. Eng.	N-543	Topics in Network Theory
Elec. Eng.	N-561	Communication Theory

General Business Option

In addition to the core courses shown above, the following courses must be completed satisfactorily.

Accountancy	N-213*	Financial I
Accountancy	N-214*	Financial II
Accountancy	N-216*	Managerial I
Accountancy	N-315*	Managerial II
Economics	N-211*	Introduction to Economics
Finance	N-314*	Business Finance I
Finance	N-315*	Business Finance II
Management	N-213*	Foundations of Behaviour I
Management	N-214*	Foundations of Behaviour II
Marketing	N-213*	Marketing & Society (Introductory)
Marketing	N-350*	Marketing Management
Quant. Meth.	N-243*	Introductory Business Statistics I
Quant. Meth.	N-244*	Introductory Business Statistics II
Quant. Meth.	N-313*	Managerial Operations Research I
Quant. Meth.	N-314*	Managerial Operations Research II

* Offered in both Day and Evening Divisions

**DEPARTMENT OF
COMPUTER SCIENCE**

*Professor and Chairman
of the Department*
H. Stanley Heaps
Visiting Professor
D. Mangeron
Associate Professors
J. S. Kowalik
Graham Martin

Assistant Professors
J. W. Atwood
Terrill Fancott
C. Y. Suen
Lecturer
Wilfried G. Probst

Computer Science is concerned with the systematic study of information. This includes both the art and science of information representation and processing, particularly the techniques of processing scientific and business information through the use of electronic computers. The many fields of computer science involve such problems as the design of computer systems, the design of suitable languages and techniques for communication with computers, economic use of computers to control industrial processes, and efficient use of computers in many branches of business and commerce.

computer applications in scientific fields. The General Business Option is similarly designed for students who wish to have an emphasis on business applications. The Electronics/Systems Option is intended for those students who wish to place some emphasis on computer architecture and design.

The Computer Science Department is established within the Faculty of Engineering. However, the university-wide Computer Science Committee ensures the interdisciplinary character of the Computer Science program.

The program offers three Options: *General Science*, *General Business*, and *Electronics/Systems*. Students must include a fixed set of core courses, but may choose an Option according to which specialized knowledge they wish to obtain in order to supplement their general background in computer science. The General Science Option is designed to give students an understanding of

ENGINEERING MATHEMATICS

Engineering Mathematics N-311

Advanced Calculus and Ordinary Differential Equations

Differentiation and integration of functions of several variables. Ordinary differential equations. Applications to the solution of physical systems. Numerical methods.

Lectures: 3 hours per week

Tutorial: 1 hour per week

Engineering Mathematics N-331

Vector Analysis and Matrix Algebra

Vector calculus. Matrices. Linear vector spaces. Linear transformation. Diagonalization of matrices. Quadratic forms. Numerical methods. Applications.

Lectures: 3 hours per week

Tutorial: 1 hour per week

Prerequisite: Engineering Mathematics N-311 previously or concurrently

Engineering Mathematics N-351

Complex Variables

Functions of complex variables. Analytic functions. Cauchy's integral theorem. Series expansions. Residue theorem. Applications to integration. Conformal mapping.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-311;

Engineering Mathematics N-331 previously or concurrently

Engineering Mathematics N-371

Applied Probability and Statistics

Elementary probability theory. Binomial, normal and Poisson distribution. Sampling and decision theory. Curve fitting. Correlation theory. Applications to the analysis of experimental results.

Factorial plans.

Lectures: 3 hours per week

Prerequisite: Engineering Mathematics N-311

Engineering Mathematics N-411

Transform Calculus and Partial Differential Equations

The Laplace transform: Laplace transforms and their properties, solution of linear differential equations with constant coefficients. Further theorems and their applications. The Fourier transform: orthogonal functions, expansion of a function in orthogonal functions, the Fourier series, the Fourier integral, the Fourier transform, the convolution theorem. Partial differential equations: physical foundations of partial differential equa-

tions. Introduction to boundary value problems.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-331 & N-351

Engineering Mathematics N-412

Transform Calculus and Advanced Differential Equations

Singularity functions. The Laplace transform and its inverse. Laplace transform of periodic functions. Fourier series; convergence of the series. The Fourier integral and the Fourier transform pair. Fourier transforms of functions which are not absolutely integrable. Discrete and continuous spectra. Representation of signals in time and frequency domains. Convolution in time and frequency domains. Ordinary differential equations with variable co-efficients. Power series solutions around ordinary and regular singular points. Introduction to Sturm Liouville problems. Special functions.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics

N-331 & N-351

Engineering Mathematics N-471

Introduction to Stochastic Processes

The concept of a random variable. Distribution and density functions. Functions of one random variable. Two random variables. Functions of two random variables. Properties of the multivariable normal distribution. General concepts of stochastic processes. Correlation and power spectrum of stationary processes.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-331 & N-371

Engineering Mathematics N-491

Numerical Methods in Engineering Systems

Methods of numerical solution of mathematical models in engineering. Interpolation. Quadratures for numerical differentiation and integration of tabulated functions. Zeros of polynomials. Systems of linear and non-linear algebraic equations. Numerical solutions of ordinary differential equations using single and multi-step methods. Analysis of round-off and discretization errors. Numerical techniques for the inversion of matrices, and for determining eigenvalues and eigenvectors of matrices, state vectors, transfer vectors and matrices.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-311 & N-331

ENGINEERING

Engineering N-211

Engineering Graphics

Elements of orthogonal projection, principal and

supplementary views, analysis of three dimensional spatial relationships of points, lines, planes and solids. Introduction to sectioning conventions, industrial fasteners, and preparation of detail and assembly drawings.

Lectures: 3 hours per week

Laboratory: 2 hours per week

Engineering N-212

Introduction to Engineering Design

Introduction to engineering design procedures through the use of open-ended design projects. Lecture topics will include engineering design process, consideration of alternatives, specifications, selection of materials, fundamentals of manufacturing processes, dimensioning for manufacture and interchangeability, quality control, presentation of engineering data and calculations; application of computer graphics in design.

Lectures: 2 hours per week

Laboratory: 2 hours per week

Prerequisites: Engineering N-211, Computer Science N-211 or equivalent

Engineering N-221

Materials Science

A study of the relationships between properties and internal structure and of the mechanisms of structural change. Atomic bonding; molecular, crystalline and amorphous structures. Structural imperfections and atom movements. Microstructure, plastic deformation and mechanical properties of ceramics. Structure and mechanical properties of polymers.

Lectures: 3 hours per week

Tutorial: 1 hour per week

Engineering N-241

Applied Mechanics

Resultants of force systems; equilibrium of particles and rigid bodies; distributed forces; statically determinate systems; friction; moments of inertia. Principles of particle kinematics and dynamics; rigid body motion; work and energy; impulse and momentum; dynamics of a system of particles and rigid bodies.

Lectures: 4 hours per week

Tutorial: 1 hour per week

Prerequisite: Engineering Mathematics N-311 previously or concurrently

Engineering N-341 (343)

Mechanics of Materials I

Stress, strain and elasticity; analysis and design of structural and machine elements subjected to axial, torsional, and bending loads; shear and bending moment diagrams; deflections; analysis of statically indeterminate systems; combined

stresses; composite beams.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Tutorial: 1 hour per week

Prerequisites: Engineering N-241, Engineering Mathematics N-311, Engineering Mathematics N-331 previously or concurrently

Engineering N-351 (350)

Thermodynamics I

Basic principles of thermodynamics and their application to various systems composed of pure substances and their homogeneous non-reactive mixtures. Simple power production and utilization cycles.

Lectures: 3 hours per week

Tutorial: 1 hour per week

Engineering N-361 (351)

Fluid Mechanics I

Fluid properties and flow characteristics; fluid statics, basic laws for systems and control volumes, conservation of mass, linear-momentum equations, moment-of-momentum equations, first law of thermodynamics, Bernoulli equation, kinematics of flow, dynamics of flow, dimensional analysis and similitude, characteristics of real fluid flow, flow measurement.

Lectures: 3 hours per week

Tutorial: 1 hour per week

Prerequisites: Engineering Mathematics N-311 & N-331, Engineering N-351

Engineering N-371

Physical Systems & Measurements I

Definition of dynamical system; lumped system elements, mechanical, electrical, fluid, and thermal; generalized lumped elements; modelling of simple systems; solutions of the equations for first and second order systems; analog computation in the study of system dynamics.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Tutorial: 1 hour per week

Prerequisite: Engineering Mathematics N-311, previously or concurrently

Engineering N-372

Physical Systems & Measurements II

Network representation of systems; formulation of system equations; frequency response methods; generalized impedances; signal analysis, singularity functions, periodic functions.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Tutorial: 1 hour per week

Prerequisites: Engineering Mathematics N-311, previously or concurrently; Engineering N-371

Engineering N-441 (441)

Mechanics of Materials II

Dynamic loading, repeated loads, stress concentrations and fatigue, introduction to inelastic action, energy methods, theories of failure, shear centre, unsymmetrical bending, bending of curved bars, introduction to linearized mathematical theory of elasticity, introduction to elastic stability.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-331, Engineering N-341

Engineering N-461 (451)

Fluid Mechanics II

Navier-Stokes equations, incompressible viscous flow, boundary layer theory, one-dimensional compressible flow, isentropic flow, normal shock, operation of nozzles and diffusers, flow through constant area ducts with friction, differential equations for open channel flow, specific energy, gravity waves, hydraulic jump. Selected experiments in incompressible, compressible, subsonic and supersonic flow.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-411, previously or concurrently; Engineering N-361

Engineering N-471 (471)

Physical Systems & Measurements III

Advanced methods of systems analysis; introduction to distributed systems; introduction to non-linear systems and their simulation; case studies of electrical, mechanical and combined systems.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-311 & N-331, Engineering N-372

Engineering N-472 (472)

Linear Control Systems

General feedback theory; time and frequency domain analysis of feedback control systems; stability criteria; design of simple feedback control systems; introduction to state-space methods.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-411 or N-412; Engineering N-372

Engineering N-501

Engineering Economy & Practice

Different branches of law. Engineering registration. Negligence. Law vs. Ethics. Contracts. Labour organizations and legislation and Workmen's Compensation Act. Organization and financing of business enterprise. Functions of management. CPM and PERT. Economy studies for decision making. Annual cost method. Present worth me-

thod. Rate of return method. Multiple alternatives.

Depreciation. Income tax.

Lectures: 3 hours per week

Engineering N-510 (510)

Technical Report

Each Engineering student must submit a technical report on entering his final year. This report should be from 2,000 to 5,000 words in length, on a topic drawn from the engineering experience of the student during his summer work. If a suitable topic based on personal experience is not available, the student may write on a topic connected with engineering, scientific or industrial work. Any student may consult the chairman of his department concerning the suitability of his proposed topic. If it is judged suitable, the letter of approval must accompany the report.

The report, including an abstract, must be suitably documented and illustrated, must be typewritten on one side only of 8½" x 11" white paper of good quality and must be suitably bound. Students are referred to Kate L. Turabian, *A Manual for Writers of Term Papers, Theses and Dissertations*, for matters of style and notation.

The report is to be submitted by the third Monday after Fall classes begin. With the exception of special circumstances approved by the Engineering Undergraduate Studies Committee in individual cases, any acceptable report submitted after this date will receive an S grade.

Engineering N-511 (511)

Computer Organization & Software

Logical basis of computer structure; machine organization and functional units; machine programming including subroutines, linkages, macros and assembly systems; compilers and operating systems.

Lectures: 3 hours per week

Laboratory: 1½ hours per week

Prerequisite: Computer Science N-211 or equivalent

Engineering N-512 (512)

Operations Research

An introduction to the application of mathematical models to various industrial problems: queuing theory, game theory, linear programming, inventory theory and Monte Carlo processes.

Lectures: 3 hours per week

Laboratory: 1½ hours per week

Prerequisite: Computer Science N-211 or equivalent

Engineering N-541 (Civil Engineering 541)

Experimental Stress Analysis

A study of modern experimental methods of de-

termining stresses and strains; mechanical, electrical and optical strain gauges; photoelasticity; brittle coatings; model analysis.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Engineering N-441

Engineering N-571

Time Varying and Non-Linear Systems

State space analysis of continuous and discrete systems; the state transition matrix; concepts of controllability and observability; Introduction to non-linear analysis; harmonic balance and describing functions; Liapunov stability theorems.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-472

Engineering N-572

Optimal Control

Parameter optimization, Lagrange multipliers and the Kuhn-Tucker lemma, calculus of variations and the Euler-Lagrange equation, Pontryagin's maximum principle, time-optimal and fuel-optimal control, introduction to dynamic programming, linear programming, computational methods.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-571

Engineering N-573

Control System Design

A course in industrial process control design procedures by case study, including practical sensing, control, and activating elements and their characteristics, and an introduction to direct digital control.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-571

Engineering N-574 (575)

Digital Computers in Systems

A study of the application of digital computers to control systems. Topics to be studied include sampled data systems; coding and data transmission; interfaces and analog-digital conversion techniques; simulation of discrete systems.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering N-511 & N-571

SOCIAL ASPECTS OF ENGINEERING

Engineering N-581

Engineers and Society I

Engineering undertakings have many indirect

economic and environmental effects on society.

This course traces the parallel developments in ideas and attitudes towards engineering and society.

Lectures: 3 hours per week

Prerequisite: Completion of 20 courses

Engineering N-582

Engineers and Society II

A continuation of Engineering N-581, discussing methods of forecasting technological change and assessing its impact on society.

Lectures: 3 hours per week

Prerequisite: Engineering N-581

Engineering N-583

The Impact of Science and Technology in Society I

Exposition of the profound influences that (1) science has had on the intellectual life of mankind and (2) technological innovations have had on the organization of society. Part I considers the historical aspects, including the industrial revolution, by thoroughly examining certain highlights. Galileo, Descartes and Newton and the subsequent steady advance in technology. Darwin, evolution and evolutionism. Advances in electricity and magnetism and industrial electrification.

Seminars: 3 hours per week

Prerequisite: Completion of 20 courses

Engineering N-584

The Impact of Science and Technology in Society II

This course considers the scientific and technological advances of the 20th century, examines the influences and problems of the present and proceeds to formulate criteria for directing technological innovation. Remote sensing, feedback control and automation. Mass production and quality control. Power and natural resources. Pollution, ecology and population density. Communications technology and the understanding of media. The two cultures and the new Luddites. Utopias.

Seminars: 3 hours per week

Prerequisite: Engineering N-583

CIVIL ENGINEERING

Civil Engineering N-421

Engineering Materials

Engineering properties of steel and other selected structural metals; heat treatment of steel and aluminium alloys. Properties of woods. Engineering properties and design of concrete. Bituminous materials. Ceramics. Design characteristics and significance of test results

of materials used in engineering construction.
Introduction to composite materials.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisite: Engineering N-221

Civil Engineering N-431 (431)

Geology

Basic principles of physical and structural geology, with emphasis on topics related to Civil Engineering; study of minerals, rocks and soil types, load formation, techniques of air photo interpretations and geological maps.

Lectures: 2 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-221

Civil Engineering N-451

Structural Engineering I

Basic structural concepts; principles of structural mechanics; design concepts; simple metal and timber structures under dead and live loads (beams, compression members, beam-columns, and trusses); introduction to structural stability, digital computer applications to analysis and design.

Lectures: 3 hours per week

Laboratory: 2 hours per week

Prerequisite: Engineering N-441, previously or concurrently

Civil Engineering N-452

Structural Engineering II

Approximate methods of building frame analysis. Properties and behaviour of reinforced concrete (beams, columns, and beam-columns); design of simple reinforced concrete structures; introduction to prestressed concrete. Computer applications.

Lectures: 3 hours per week

Laboratory: 2 hours per week

Prerequisites: Engineering N-441, Civil Engineering N-451

Civil Engineering N-461 (461)

Hydrology

Principles of hydrology and methods of analysis for engineering planning and design; hydrologic cycles, data collection and interpretation; relation to air mass movements, precipitation, evaporation, stream flow, floods, groundwater.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-371, Engineering N-461; Civil Engineering N-431 previously or concurrently

Civil Engineering N-471 (471)

Surveying

Elementary operations employed in engineering

surveying; use, care and adjustment of instruments; linear and angular measurements; traversing; earthwork calculations; theory of errors; horizontal and vertical curves and curve layout; slope stakes and grades; application of surveying methods to city, land and topographic surveying and introduction to advanced surveying techniques; use of digital computers in survey calculations.

Summer school taken before entering second year of study in the B. Eng. program.

Lectures and Field Work: 8 hours per day; 6 days per week for 3 weeks

Civil Engineering N-472 (472)

Transportation Engineering I

A survey of all transportation modes and introduction to some recent concepts of transportation system planning. Social and economic importance of transportation; development and history of transportation; essential elements of a transportation system; characteristics of rail, road, air, water pipeline and other transportation modes. Transportation planning, land use and traffic, multiple use of right-of-way; team approach; route and terminal location.

Lectures: 3 hours per week

Prerequisite: Civil Engineering N-471

Civil Engineering N-531 (531)

Soil Mechanics I

Index properties and classification of soils. Weight-volume relationships. Soil structure. Clay mineralogy. Moisture-density relationships. Capillarity. Permeability. Flow nets and seepage. Neutral and effective stresses. Consolidation theory. Shear strength. Frost action. Stresses in soil due to external loads. Laboratory tests to illustrate lecture topics.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisites: Civil Engineering N-421 & N-431

Civil Engineering N-532 (532)

Foundations

Soils, rocks and soil moisture. Soil exploration. Loads, bearing capacity and settlement. Lateral pressures. Foundation drainage and waterproofing. Spread footings. Strip footings. Combined footings. Pile foundations. Caissons. Retaining walls. Sheet piling walls. Braced cofferdams. Cellular cofferdams. Anchors.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Civil Engineering N-452 & N-531

Civil Engineering N-533 (533)

Soil Mechanics II

Selected topics in mechanics of soil media in-

cluding water flow, rheological behaviour, failure theories, and ideal materials.

Lectures: 3 hours per week

Prerequisite: Civil Engineering N-531.

Civil Engineering N-551

Structural Engineering III

Elastic deformations of structures; classical and modern methods of analysis of statically indeterminate structures; introduction to limit analysis and design of metal frames and ultimate design of statically indeterminate reinforced concrete structures. Computer applications.

Lectures: 3 hours per week

Laboratory: 2 hours per week

Prerequisite: Civil Engineering N-452

Civil Engineering N-552 (553)

Matrix Analysis of Structures

Classical and matrix methods of structural analysis; influence coefficients, transformation matrices. Matrix formulation of the force and of the displacement methods of analysis. Computer applications.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-411,

Civil Engineering N-551

Civil Engineering N-553

Structural Engineering IV

Extension of previous discussions; reinforced concrete slabs; prestressed concrete structures; analysis and design of building frames; simple shell structures.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Civil Engineering N-551

Civil Engineering N-554

Structural Engineering Project

Various design considerations and current specifications. Behaviour and design of connections; synthesizing problems for timber, reinforced concrete and steel bridges.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Civil Engineering N-553 previously or concurrently

Civil Engineering N-561

Hydraulic Structures

Project planning. Selection of type of dam. Foundations and construction materials. Earthfill, rock-fill and concrete dams. Spillways and outlet works. Diversion during construction. Maintenance and operation. Sample specifications.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisites: Civil Engineering N-531; Civil

Engineering N-461 previously or concurrently

Civil Engineering N-562

Water Resources Engineering I

Open-channel flow and its classifications. Open channels and their properties. Energy and momentum principles. Critical flow: computation and applications. Development of uniform flow and its formulas. Computation of uniform flow. Design of channels for uniform flow. Gradually varied flow: theory and analysis, methods of computation and practical problems.

Lectures: 3 hours per week

Prerequisite: Engineering N-461 previously or concurrently

Civil Engineering N-563

Water Resources Engineering II

Descriptive and quantitative hydrology. Groundwater. Reservoirs. Control structures. Measurement techniques. Open channels. Hydraulic machinery. Economic and graphical analysis. River engineering and navigation. Flood control. Planning and design of water resources systems.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisites: Civil Engineering N-461 & N-562

Civil Engineering N-571

Transportation Engineering II

Design controls and criteria including traffic and highway characteristics and capacity. Location and right-of-way. Earthworks. Geometric design of highways and terminals. Pavement design. Highway design project.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Civil Engineering N-472

Civil Engineering N-572

Transportation Engineering III

Highway drainage. Highway economic analysis. Intersections and interchanges. Introduction to railroad engineering. Introduction to airport engineering. Highway design project.

Lectures: 2 hours per week

Laboratory: 3 hours per week

Prerequisite: Civil Engineering N-571

Civil Engineering N-573

Urban Planning

The general planning process. Basic studies: population, economics and land use. Land use planning. Capital improvement programs and financing. Plan implementation.

Lectures: 3 hours per week

Prerequisite: Civil Engineering N-472

Civil Engineering N-581 (582)

Public Health Engineering I

Studies on theory and design of domestic industrial water supply systems; collection; development of water sources; analysis and design of distribution systems; treatment of raw water; design of treatment plants and facilities; pumps and pumping stations; chemicals and their use in water purification.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-371; Engineering N-461 previously or concurrently

Civil Engineering N-582 (583)

Public Health Engineering II

Design of sewage collection facilities; municipal and industrial waste disposal; design of sewage treatment plants and disposal works; application of chemistry and bacteriology to design and operation units.

Lectures: 3 hours per week

Prerequisite: Engineering N-461

ELECTRICAL ENGINEERING

Electrical Engineering N-411 (421)

Electronics I

Characteristics of diodes, vacuum tubes, transistors, and associated devices; application to the basic processes of rectification, amplification, oscillation, and modulation.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisites: Engineering N-372

Electrical Engineering N-412 (422)

Electronics II

A further, more detailed discussion of the topics listed in Electrical Engineering N-411; practical circuits for amplifiers (Class A, B and C); oscillators, modulators, etc.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisite: Electrical Engineering N-411

Electrical Engineering N-421

Electrical Properties of Solids

Crystal structure, reciprocal lattice, dynamics of crystal lattices, outline of quantum and statistical mechanics, electronic conduction, semi-conductors, superconductivity, dielectrics, magnetism.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-221

Electrical Engineering N-431 (431)

Electromechanics I

Energy in singly and doubly excited systems;

electro-mechanical energy conversion principles; basic features of rotating machines; ideal d.c., polyphase induction, and synchronous machines.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisite: Engineering N-372

Electrical Engineering N-432 (432)

Electromechanics II

More detailed study of d.c., polyphase induction and synchronous machines, including the effects of magnetic saturation; single-phase fractional-horsepower motors; transformers in 3-phase circuits; static rectifiers and inverters; application of thermal networks to the rating of machines.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-411 or N-412; Electrical Engineering N-431

Electrical Engineering N-441

Linear Network Analysis

Preliminary considerations. The s-plane and system functions. Network topology and equilibrium equations. One and two port networks. Image parameters and filter design. Response to singularity functions. Transient response of networks.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-412; Engineering N-372

Electrical Engineering N-442

Distributed Parameter Systems

Transmission line theory. Lossless and distortionless lines. The transmission line on a two port device. Scattering parameters. Impedance transfer, Smith chart, stub matching, standing waves. Derivation of partial differential equations for various physical systems. Methods of solution for elliptic, parabolic and hyperbolic equations. Applications, including rectangular wave guides.

Lectures: 3 hours per week.

Prerequisites: Electrical Engineering N-441 & N-451

Electrical Engineering N-451

Electromagnetic Field Theory

The field concept. Maxwell's equation. Boundary conditions. Power and energy. The electrostatic field. Electrostatic potential. The concept of capacitance. Conformal mapping in electrostatics. Polarization. The concept of local field in matter. The magnetostatic field. The Biot-Savart law. The scalar magnetic potential. Plane waves. Total internal reflection. The Brewster angle.

Lectures: 3 hours per week

Tutorial: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-331 & N-351

Electrical Engineering N-501 (501)**Electrical Engineering Seminar**

In the second term of the final year, students in Electrical Engineering hold meetings with faculty members. These meetings are organized to provide the student with an opportunity to exercise his ability to present and to defend his thoughts on topics of his own choice. Students will be encouraged to devote some of their discussions to such topics as continuing professional education, professional societies, organization of engineering employment, and professional ethics. Seminars: 2 hours per week
Prerequisite: Completion of 17 courses

Electrical Engineering N-511 (521)**Electronics III**

A continuation of the material of Electrical Engineering N-412; wave-shaping circuits and digital logic circuits.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisites: Engineering Mathematics N-412; Electrical Engineering N-412

Electrical Engineering N-512**Design of Logic and Switching Circuits**

Combination logic and Boolean algebra for the description and analysis of electrical switching circuits. Transistor logic elements and their practical limitations. Analysis, synthesis and minimization of combinational and sequential circuits.

Lectures: 3 hours per week

Prerequisite: Electrical Engineering N-411

Electrical Engineering N-521**Semiconductor Physics**

Electrons in periodic lattices, intrinsic and extrinsic semiconductors; p-n junctions, rectifiers and transistors; material and devices technology.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-421

Electrical Engineering N-522**Semiconductor Devices Design**

Junction and field-effect transistors; surface effects and surface-controlled devices; other semiconductor devices; device technology.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-521

Electrical Engineering N-531 (571)**Electrical Power Engineering**

Inductance, capacitance, resistance of polyphase transmission lines; current and voltage relations of transmission lines; load flow studies; symmetrical and unsymmetrical faults; power system stability.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-431

Electrical Engineering N-532 (532)**Generalized Machine Theory**

Linear transformation to electric circuits analysis; power invariant transformations; primitive machines; dynamic and steady-state response of machines.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Electrical Engineering N-431

Electrical Engineering N-541**Introduction to Active Networks**

The indefinite admittance matrix and applications to the analysis of active networks. State variable approach to network analysis. Positive real functions. Synthesis of RC one ports. Properties of RC transfer functions. The operational amplifier. Filter design using operational amplifiers.

Lectures: 3 hours per week

Prerequisite: Electrical Engineering N-441

Electrical Engineering N-542**Digital Filters**

Introduction to recursive and non-recursive digital filters; realization methods using the z-transform calculus; amplitude and phase characteristics and relevant approximations and transformations; comparison of digital with conventional filters; application of digital filters.

Lectures: 3 hours per week

Prerequisite: Electrical Engineering N-441

Electrical Engineering N-543**Topics in Network Theory**

The course content may vary from year to year and will be chosen from such current areas as computer aided design, inductorless filter design, etc.

Lectures: 3 hours per week

Prerequisite: Electrical Engineering N-541

Electrical Engineering N-551**Lasers and Masers**

Electric dipole transitions. Lifetime and collision broadening. Magnetic dipole transitions. Fundamentals of maser amplification. Rate equations. Microwave solid state masers. Optical

resonators and lens waveguides. Doppler broadening. Optical masers (lasers).
Lectures: 3 hours per week
Laboratory: 3 hours per week, alternate weeks
Prerequisite: Electrical Engineering N-451

Electrical Engineering N-552 (552)

Microwave Engineering

The dipole antenna. Wave propagation in guides. Impedance transformation and matching. Waveguide couplers. Cavity resonators. Microwave filter design. Ferrite devices. The reflex klystron. The magnetron. The travelling wave tube.

Lectures: 3 hours per week
Laboratory: 3 hours per week, alternate weeks
Prerequisites: Electrical Engineering N-442 & N-451

Electrical Engineering N-561 (561)

Communication Theory

Principles of amplitude, angle of pulse modulation. Components including modulators, mixers, limiters and demodulators. Representative examples of complete transmission systems. Qualitative treatment of modulation systems in the presence of noise.

Lectures: 3 hours per week
Laboratory: 3 hours per week, alternate weeks
Prerequisite: Engineering Mathematics N-412

Electrical Engineering N-562 (562)

Statistical Communication Theory

Transmission and filtering of random signals. Linear mean square optimum filters. Analysis of modulation systems in the presence of noise. Introduction to information theory.

Lectures: 3 hours per week
Laboratory: 3 hours per week, alternate weeks
Prerequisites: Engineering Mathematics N-471, Electrical Engineering N-561

Electrical Engineering N-581

Electrical Engineering Project

The Electrical Engineering project provides an opportunity for each student to carry out a small design project associated with one or more of the specialist elective courses, under the supervision of a faculty member. The nature of the project selected should be such as to require independent study of current technical literature. When feasible the designs will be assessed in the laboratory. Each student is to present a complete report at the end of the project.

Equivalent laboratory time: 6 hours per week
Prerequisite: Registration in final year

MECHANICAL ENGINEERING

Mechanical Engineering N-421

Heat Treatment of Metals

Science and technology of heat treating of metals; the effect of micro-structural changes on the properties of alloys. Solid solution alloys, diffusion. Equilibrium phase diagrams. Kinetics of phase transformations. Thermomechanical treatment of steels. Precipitation hardening. Solidification.

Lectures: 3 hours per week
Laboratory: 3 hours per week, alternate weeks
Prerequisite: Engineering N-221

Mechanical Engineering N-422

Mechanical Properties of Metals

The mechanisms of deformation and softening and the effects of processing variables on the mechanical properties of metals: cold working, annealing, and hot working of metals. The service capabilities of alloys and their relationship to thermomechanical processing: creep, fracture, fatigue and corrosion of metals and materials. Composite materials.

Lectures: 3 hours per week
Tutorial: 3 hours per week, alternate weeks
Prerequisite: Engineering N-221

Mechanical Engineering N-441 (443)

Kinematics of Mechanisms

Geometry of motion and mobility criteria; kinematic analysis and synthesis of linkages; theory of spur gear; helical, worm and bevel gearing; gear trains and differentials; cam kinematics; introduction to analog computing mechanisms.

Lectures: 2 hours per week
Laboratory: 2 hours per week
Prerequisites: Engineering Mathematics N-331, Engineering N-241

Mechanical Engineering N-442 (444)

Dynamics of Machines

Kinematic analysis of space mechanisms; static and dynamic analysis of planar mechanisms and gear trains; Euler's equations of motion; gyroscopic forces; dynamic analysis of space mechanisms; balancing of rotating and reciprocating machinery; introduction to mechanical vibrations.

Lectures: 3 hours per week
Laboratory: 3 hours per week
Prerequisites: Engineering Mathematics N-351, Mechanical Engineering N-441

Mechanical Engineering N-451 (454)**Thermodynamics II**

Thermodynamic functions and equations, relationships between properties; behaviour of gases and their nonreactive mixtures; combustion. Applications of thermodynamics to power production and utilization systems.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering N-351

Mechanical Engineering N-452 (455)**Heat Transfer I**

Steady state and transient heat conduction, numerical methods for two-dimensional steady state heat conduction. Radiation heat exchange between black bodies, between grey bodies and from gases, vapours and flames.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Engineering Mathematics N-411

Mechanical Engineering N-521 (521)**Manufacturing Processes**

The various processes for shaping materials are studied from both theoretical and practical aspects. The limitations imposed by the properties of the raw materials and the effect of processing on the final properties of the products. Casting. Welding. Non-destructive testing. Powder technology. Mechanical forming: shear line theory, extruding, forging, rolling, drawing, bending. Metal cutting, machinability, non-traditional techniques, metrology. Finishing processes. Plastics processing: extrusion, molding, vacuum forming, lamination. Industrial practice is observed through field trips.

Lectures: 3 hours per week

Tutorial: 3 hours per week, alternate weeks

Prerequisites: Mechanical Engineering N-421 & N-422 previously or concurrently

Mechanical Engineering N-541 (541)**Machine Design I**

Failure of mechanical elements under dynamic loading; principles of design synthesis; shafting; bolted and welded joints; mechanical springs; clutches; brakes and couplings; anti-friction bearings; theory of lubrication and journal bearings; flexible mechanical elements.

Lectures: 3 hours per week

Laboratory: 3 hours per week

Prerequisites: Engineering N-441, Mechanical Engineering N-442

Mechanical Engineering N-542 (542)**Machine Design II**

Design of gears; design of gear drives;

introduction to design of machine tools; introduction to optimum design of mechanical systems; technical talks on selected topics in mechanical design; machine design project.

Lectures: 1.5 hours per week

Prerequisite: Mechanical Engineering N-541; Mechanical Engineering N-581 concurrently

Mechanical Engineering N-543 (543)**Mechanical Vibrations**

Transient vibrations under impulsive shock, and arbitrary excitation; normal modes, free and forced vibrations. Multi-degree of freedom systems, influence coefficients, orthogonality principle, numerical methods. Continuous systems; longitudinal torsional and flexural free and forced vibrations of prismatic bars. Lagrange's equations. Non-linear vibrations. Vibration measurements.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering Mathematics N-411, Engineering N-372, Mechanical Engineering N-442

Mechanical Engineering N-551 (557)**Thermodynamics III**

A continuation of Thermodynamics II including applications to more complex power production and utilization systems, gas vapour mixtures and development of property data.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisite: Mechanical Engineering N-451

Mechanical Engineering N-552 (558)**Heat Transfer II**

Review of momentum transfer, free and forced convection heat transfer, dimensional analysis as applied to convection heat transfer configurations, heat exchangers, introduction to mass transfer.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering N-461, Mechanical Engineering N-452

Mechanical Engineering N-553 (554)**Environmental Control**

The effect of air temperature and humidity on physiological comfort, overall heat-transmission coefficients across building sections, heating load calculations, the effect of solar radiation on air-conditioning load, cooling load calculations, heating, air-conditioning and ventilating systems, design of piping and duct arrangement.

Lectures: 3 hours per week

Prerequisites: Mechanical Engineering N-452 & N-551

Mechanical Engineering N-554**Thermodynamics IV**

Thermodynamics of reactive systems; systems involving external forces; direct energy conversion. Thermodynamic probability; distribution laws and applications of quantum-statistical mechanics.

Lectures: 3 hours per week

Prerequisites: Engineering Mathematics N-371,

Mechanical Engineering N-551

Mechanical Engineering N-561 (551)**Gas Dynamics**

Review of one-dimensional, compressible flow. Normal and oblique shock waves; Prandtl-Meyer flow; combined effects in one-dimensional flow; non-ideal gas effects; multi-dimensional flow; linearized flows; method of characteristics. Select-experiments in supersonic flow, convergent-divergent nozzles, hydraulic analogue and Fanno tube.

Lectures: 3 hours per week

Laboratory: 3 hours per week, alternate weeks

Prerequisites: Engineering N-461, Mechanical Engineering N-451

Mechanical Engineering N-562 (553)**Fluid Machinery**

Momentum analysis for fluid propulsion, momentum-of-momentum and Euler turbine equations, thermodynamics of gas flow, analysis of blades and impellers, performance of incompressible and compressible turbo-machinery.

Lectures: 3 hours per week

Prerequisites: Engineering N-461, Mechanical Engineering N-451

Mechanical Engineering N-581 (581)**Design or Experimental Project**

A mechanical engineering design, simulation or experimental project appropriate to the senior level carried out under the supervision of a faculty member. A complete report is required at the end of the project.

Equivalent Laboratory time: 6 hours per week

Prerequisite: Registration in final year

of Fortran with numerical and non-numerical applications.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

NOTE: Students who have credit for Computer Science 011 or equivalent may not take this course for credit.

Computer Science N-212 (212)**Computer Programming II**

The course covers discussion of the following basic subjects: the logical design of computers, including registers and addressing, and their operation; the basic instructions and their use in an assembler language; the design of a simple operating system which deals with calling compilers, loading, executing and interrupts. An introduction to the data processing field and use of the COBOL language.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

Prerequisite: Computer Science N-211 or equivalent

NOTE: This course is no longer offered.

See Computer Science N-221 & N-222.

Computer Science N-220**Introduction to Discrete Structures**

Introduction to some fundamental algebraic, logical and combinatoric concepts such as: Set algebra; mappings and relations. Algebraic structures; semi-groups and groups. Elements of the theory of directed and undirected graphs. Boolean algebra and propositional logic. Applications of these structures to various areas of computer science.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science 011, or equivalent, previously or concurrently; Mathematics 002, or equivalent

Computer Science N-221**Introduction to Assembly Language Programming.**

Computer structure, machine language, instruction execution, addressing techniques and digital representation of data. Symbolic coding and assembly systems; macro definition and generation. Program segmentation and linkage; loading. Systems and utility programs; programming techniques.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

Prerequisite: Computer Science 011, or equivalent, previously or concurrently

Computer Science N-222**Introduction to Business Programming**

Introduction to the data processing field and use of a business oriented language (e.g. COBOL).

Concepts of mass storage characteristics. File

COMPUTER SCIENCE

Computer Science N-211 (211)**Introduction to Computers and Computing**

Problem solving, algorithms, computers and programming. An introduction to the essential features of computers and computing systems. Implementation of algorithms in machine language, assembly language (for a hypothetical machine) and Fortran. Detailed specifications

organization and handling; sorting. Basic business applications.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

Prerequisite: Computer Science 011, or equivalent

NOTE: Students who have credit for Computer Science N-212 or Quantitative Methods N-423 may not take this course for credit.

Computer Science N-301

Computer Organization

Organization, logic design and components of a digital computer. Basic digital circuits. Data representation and transfer. Digital arithmetic. Digital storage and accessing. Control functions. Input-output devices and channels. System organization. Reliability. Description and simulation techniques.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-221 & N-310

NOTE: Students who have credit for Computer Science N-401 (401) may not take this course for credit.

Computer Science N-302

Computer Operating Systems

Software organization. Batch processing systems; translation, loading and execution. Communication between program units. Parallel input-output processing, buffers, overlapped channels, interrupt facilities and memory protection. Spooling. Multiprogramming and multiprocessing systems. Time-sharing and real-time applications.

Addressing techniques, paging, core management; file system design and accounting procedures.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-301, or equivalent

NOTE: Students who have credit for Computer Science N-402 (402) may not take this course for credit.

Computer Science N-303

Programming Languages and Compiler Theory

Review of assemblers and macro instructions. Symbol tables and storage allocation. Problem-oriented languages. List processing and string manipulation languages. Structure of algorithmic languages. Compiler organization: statement identification and decomposition, syntax analysis, code generation, run-time routines, error diagnostics, code optimization. Compiler writing languages.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-301; Computer Science N-312 previously or concurrently

NOTE: Students who have credit for Computer Science N-403 may not take this course for credit.

Computer Science N-310

Intermediate Scientific Programming

Achievement of proficiency in programming techniques, using a high-level language with scientific orientation (e.g. FORTRAN, ALGOL). Formal definition and properties of this language; numerical and non-numerical data types, storage allocation, character manipulation, arrays, iteration, subroutines and procedures. Debugging techniques. Use of mass storage and library programs. Basic applications in science (e.g. mathematics, statistics).

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

Prerequisites: Computer Science 011, Mathematics 005, or equivalents; Computer Science N-220, previously or concurrently

Computer Science N-311

Principles of Data Processing

Study of techniques to handle large scale data processing applications. Design of business systems. Preparation and handling of data.

Interpretation and validity of results. Information retrieval. Introduction to systems analysis.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-222 & N-310

NOTE: Students who have credit for Computer Science N-411 (411) may not take this course for credit.

Computer Science N-312

Data and File Structures I

A model of Data Processing System. Basic concepts of data. Trees and linear lists. Hierarchic and associative structures. Storage structures and storage management.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-221, N-222 & N-310, or consent of the instructor

NOTE: Students who have credit for Computer Science N-412 (412) may not take this course for credit.

Computer Science N-320

Numerical Methods

Introduction to numerical algorithms fundamental to scientific computer applications. Errors; interpolation; quadrature; linear systems of equations; roots of polynomials and non-linear equations; numerical solution of ordinary differential equations. Emphasis on the algorithmic approach; efficiency.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

Prerequisites: Mathematics 006, or equivalent; Mathematics 006 or N-281 or equivalent; Computer Science N-310

NOTE: Students who have credit for Mathematics

N-311 or Engineering Mathematics N-491 or Computer Science N-471 may not take this course for credit.

Computer Science N-340

Special Purpose Computer Systems

Structure and system organization of special purpose computers. Symbolic coding and assembly language, instruction repertoire, addressing modes, programming techniques, systems and utility programming, peripheral devices and interfacing. A small computer system will be used for demonstration and laboratory purposes.

Lectures: 3 hours per week, 1 term

Laboratory: 3 hours per week, 1 term

Prerequisite: Computer Science N-301, or consent of instructor

Computer Science N-401 (401)

Computer Organization

Introduction to Boolean algebra and combinational logic. Basic digital circuits. Data representation and transfer. Digital arithmetic. Digital storage and accessing. Control functions. Input-output facilities. System organization. Reliability. Unorthodox organizations. Evaluation of solutions.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-212 or equivalent

NOTE: This course is no longer offered.

See Computer Science N-301.

Computer Science N-402 (402)

Computer Systems

Batch processing systems: translation, loading and execution; communication between program units. Special features: buffers; overlapped channels; interrupt facilities; input - output control; memory protection. Addressing techniques; paging. Multiprogramming and multiprocessing systems; time-sharing and real-time applications.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-401

NOTE: This course is no longer offered. See Computer Science N-302.

Computer Science N-403 (403)

Programming Languages

Machine language. Assemblers, symbol tables and macro-instructions. Problem-oriented languages; structure of algorithmic languages; compiler organization; statement decomposition; syntax analysis; code optimization. Principles of list processing and string manipulation languages.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-401

NOTE: This course is no longer offered. See Computer Science N-303.

Computer Science N-404

Formal Languages and Syntactic Analysis

Definition of formal grammars: arithmetic expressions and precedence grammars; context-free and finite-state grammars. Algorithms for syntactic analysis: recognizers, backtracking and operator precedence techniques. Semantics of grammatical constructs. Simple syntactical compilation. Relationship between formal languages and automata.

Lectures: 3 hours per week, 1 term

Prerequisites: Computer Science N-303 & N-312

Computer Science N-405

Computer Graphics

Display memory: generation of points, vectors, etc. Interactive versus passive graphics; CRT devices and plotters. Analog storage of images. Digitizing and digital storage. Pattern recognition. Data structures and graphics software. The mathematics of 3-dimensional transformations; projections. Applications in computer-aided design and instruction.

Lectures: 3 hours per week, 1 term

Laboratory: 1½ hours per week, 1 term

Prerequisites: Computer Science N-302 & N-312

Computer Science N-411 (411)

Principles of Data Processing

Requirements of techniques to handle large scale data processing applications; control; tree theory; decision tables; interpretation and validity of results; information retrieval.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-212

NOTE: This course is no longer offered. See Computer Science N-311.

Computer Science N-412 (412)

Data and File Structures I

A model of data processing system. Basic concepts of data. Trees and linear lists.

Hierarchic and associative structures. Storage structures and storage management. Sorting.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-212 or consent of instructor

NOTE: This course is no longer offered. See Computer Science N-312.

Computer Science N-413 (413)

Data and File Structures II

Multilinked structures, techniques of file structuring. File size and access time estimating.

Data and file management systems. Searching.

Lectures: 3 hours per week, 1 term

Prerequisite: Computer Science N-312 or consent of instructor

Computer Science N-414

Information Retrieval

The basic problems of information retrieval. Document and library data bases. Question logic and processing considerations. Structure of search programs for batched questions with sequential and inverted files. Practical considerations in system design. Measures of retrieval effectiveness. Lectures: 3 hours per week, 1 term
Prerequisite: Computer Science N-312 or equivalent

Computer Science N-421 (421)

Introduction to the Theory of Automata

Finite state machines, state transition diagrams and tables. Neutral networks. Regular expressions, Kleenes theorem. Computability. Turings theorem. Turing machines. Universal machines relationships to the theory of recursive functions. Lectures: 3 hours per week, 1 term
Prerequisite: Computer Science N-301 or N-430 or Electrical Engineering N-512

Computer Science N-430 (430)

Logical Design and Switching Theory

Symbolic logic and Boolean algebra for description and analysis of switching circuits; error detecting and correcting codes; storage elements defined logically; basic sequential circuits; digital design principles. Lectures: 3 hours per week, 1 term
Prerequisites: Mathematics 004 & 005 or equivalents

Computer Science N-440 (440)

Heuristic Programming

The definition of heuristic vs. algorithmic methods; rational heuristic approach; non-numeric symbolic programming; self-organizing systems; heuristic pro-techniques including a list of the uses of list processing languages; survey of examples from representative application areas including the work in artificial intelligence, musical compositions, and other advanced computer application areas. Lectures: 3 hours per week, 1 term
Prerequisite: Computer Science N-303

Computer Science N-450 (450)

Discrete System Simulation

A comparison of simulation techniques: discrete, continuous and hybrid. Queueing models, analysis of data. Model building. Review of simulation languages. Application to business problems and operations research. Lectures: 3 hours per week, 1 term
Prerequisites: Mathematics N-351, Computer Science N-303

Computer Science N-471 (471)

Digital Computer Programming and Numerical Methods

A course in computer programming oriented to senior students in the Sciences. This course will teach the students Fortran programming with applications in numerical analysis and advanced mathematical techniques. Lectures and laboratory. Lectures: 3 hours per week, 1 term
Prerequisite: Mathematics N-270 or N-271 previously or concurrently

NOTE: This course is no longer offered. See Computer Science N-320.

Computer Science N-490 (490)

Seminar and Project

A series of seminars presented by faculty members and students concerning their particular interest. Students will also work on a project in conjunction with a faculty member. Seminar: 1 hour per week, 1 term
Project: 2 hours per week, 1 term
Prerequisite: Consent of faculty member responsible

NOTE: This course is no longer offered. See Computer Science N-491.

Computer Science N-491

Computer Science Project

A series of seminars presented by students and faculty members, concerning their particular interest. Students will work on a project in conjunction with a faculty member. Seminar: 1 hour per week, 2 terms
Project: 2 hours per week, 2 terms
Prerequisite: Registration in final year
NOTE: Students who have credit for Comp. Science N-490 may not take this course for credit.

Mature Student Qualifying Program

Mature Student Qualifying Program

Aims

In keeping with the traditional open policy of Sir George Williams towards older students, the Mature Student Qualifying Program is designed to enable students who are twenty-one years of age or older to prepare themselves for entry to the new post-CEGEP undergraduate program. The university assumes that the age of the student will have allowed him or her to acquire informally some of the general education given to younger students in CEGEP, and concentrates on the knowledge and skills which will be needed to tackle a given undergraduate program.

Successful completion of the appropriate group of six full courses or the equivalent in half-courses (six credits) will make the student admissible to the corresponding undergraduate program. The Mature Student Qualifying Program is offered in the Evening Division only.

Admission Requirements

Minimum Age Requirement

All persons 21 years of age or older are eligible to apply for admission to the Mature Student Qualifying Program.

Language Proficiency

In the case of students whose first language is other than English, and who have had all or part of their secondary schooling in another language, the university assumes that such students will have assessed their ability to cope with a program where the language of instruction is English.

Students who have a required English course in their MSQP program will take a diagnostic test prior to registration, or, if this is impossible, during the registration period, in order to determine which English course is best suited to their needs and capacities. Students may repeat English 100 or 101 once only. If unsuccessful on repetition of the course, they will substitute a course in another discipline, no further English courses being required of them.

Where there is no English course requirement, students are urged to avail themselves of the opportunity of taking the diagnostic test and, in the light of their results, to take whatever English course may be of value to them, such a course to bear regular MSQP credit.

Admission with Advanced Placement

Applicants who have attended a Senior Matriculation program, college, university and/or

other equivalent institutions of higher learning are required to have their records of study submitted to the Office of Admissions even though no credit may have been earned at an institution. Two copies of each transcript are required. Former CEGEP, university, and other such transcripts are not to be submitted by you but must be sent directly to this office from the registrar of your previous institution. Although an applicant's records from several institutions may be summarized on one transcript, an applicant will not be considered until two official transcripts from each institution attended have been received. Readable photocopies of Senior Matriculation Certificate results are acceptable.

Each request for transfer credit will be considered on its own merits. It should be noted that certain conditions are attached to the granting of credit for courses completed elsewhere.

Residence Requirement

A minimum of three credits must be completed in the Mature Student Qualifying Program at Sir George Williams University.

Guide to Placement

- (a) Without High School Graduation
 - With Junior Matriculation
 - With Partial Senior Matriculation or equivalent
 - 6-credit program required
- (b) With Senior Matriculation
 - 3 to 6 credits required, depending on specific course requirements - minimum of 3 credits

Criteria for Admission

Applicants to the Mature Student Qualifying Program are not required to write entrance tests, unless requested.

Application for Admission

It is recommended that application for admission be made as early as possible on forms provided by the Office of Admissions. Academic certificates and other supporting documents not available at the time of application must be submitted as soon as they become available.

Application Fee

All applications for admission must be accompanied by an application fee of \$10 (Canadian), payable by certified cheque or money order. It is not refundable under any

circumstances nor will it be applied towards tuition fees.

Dates of Entry for New Mature Student Qualifying Program Students

Students are admitted as Evening students to the Summer Session (June to August) and to the Winter Session (September to April) in June and September respectively.

Deadline for Receipt of Applications

Applications for admission to the Mature Student Qualifying Program must be received by the Office of Admissions according to the following dates:

SUMMER SESSION (June to August) APRIL 15

WINTER SESSION (September to April) JULY 15

Program Structure

Students will register in one of the following programs: Pre-Arts (including Fine Arts), Pre-Science, Pre-Commerce, Pre-Engineering. Programs will consist of required courses and electives. Requirements of the various programs are as follows (where specific courses are listed, titles will be found below):

1. Pre-Arts (including Fine Arts)

General requirements:

One credit in English (language or literature) and five electives, not more than three of which may be taken outside the Faculty of Arts.

Specific requirements for programs in Arts

- a. Anthropology, Applied Social Science, Geography, Sociology, Urban Studies: one credit in Mathematics.
NOTE: It is strongly recommended that students planning to specialize in Economics take Mathematics 103* and 105*.
- b. Art: two credits in studio work, one credit in Art History, and one additional credit in Cinema, Music or Theatre Arts.
- c. Cinema, English, French, Theatre Arts: one credit in English Literature (in addition to the general requirement) and one credit in French.
- d. German, Greek, Hebrew, Italian, Latin, Russian, Spanish: At least one, and preferably two credits in the language(s) to be studied.
- e. Canadian Studies, Education, History, Humanities of Science, Philosophy, Russian Studies, Religion: no special requirements, but students should consult with the appropriate department chairman or program coordinator.
- f. Psychology: Mathematics 102*, 103*, 105*, 107*, Biology 101*; Psychology 111.

* half course

2. Pre-Science

Mathematics 102*, 103*, 104*, 105*. Biology 101*; Chemistry 101*, 102*; Physics 101*, 102*, 103*; one elective.

Mathematics 101* is required of those not having high school intermediate mathematics (functions), and Biology 102* is required of those planning to enter programs in the Biological Sciences; where taken, these courses will count towards the elective credit. Computer Science 111* is recommended as an elective.

3. Pre-Engineering

As for Pre-Science, but replacing Biology 101* with Computer Science 111*.

4. Pre-Commerce

Mathematics 102*, 103*, 105*, 106*, 107*; one credit in English (language or literature); one credit in Humanities or Social Science; one and one half elective credits.

Mathematics 101* is required of those not having high school intermediate mathematics (functions).

It should be noted that specialization at the undergraduate level in Mathematics may be taken either in Science (Pre-Science program required) or in Arts (Mathematics courses in the Pre-Science program required). Specialization in Psychology may be taken either in Arts (Pre-Arts program with specific requirements) or in Science (Pre-Science program with Psychology as elective). Specialization in Economics may be taken in either Arts or Commerce.

5. Pre-Computer Science

The requirements for the General Science and Electronics/Systems Options shall be the same as those for Pre-Engineering. For the General Business Option they shall comprise: Mathematics 102, 103, 104, 105 and 106. Computer Science 111. Three elective credits.

Courses

Full courses, each worth one credit, are given from September to May; half courses are given from September to December, or from January to May, and are worth one half credit. Both full and half courses will normally be offered in the Evening Summer Session.

The courses listed below are offered by the respective faculties. Inclusion of a course in this list does not guarantee that it will be given every year.

NOTE: Descriptions for courses with an 'N'

number (e.g. N-211) will be found in the undergraduate part of this announcement, under the appropriate departmental heading.

Faculty of Arts

A. Humanities of Science

HUMANITIES OF SCIENCE

Humanities of Science 101

Contemporary Image of Science I: The Physical Sciences

This course provides a general humanistic understanding of the physical sciences. The three main themes are man and the universe; the reality and unreality of matter and energy; man and the dynamic earth. (full course)

NOTE: Students who have credit for Natural Science 210 or Humanities of Science 010 or 210 may not take this course for credit.

Humanities of Science 102

Contemporary Image of Science II: The Biological Sciences

This course provides a general humanistic understanding of the biological sciences. The three main themes are biology and evolutionary theory; evolution of life and man; man, ecology and society. (full course)

NOTE: Students who have credit for Natural Science 210 or Humanities of Science 010 or 210 may not take this course for credit.

Humanities of Science 111 (N-211)

Social History of Science (full course)

Humanities of Science 161 (N-261)

Biology and Social Change (full course)

Humanities of Science 171 (N-271)

Science, Technology and Society (full course)

B. Humanities Division

ART

Art 101

Visual Arts Orientation I

A studio course dealing with basic media, fundamental techniques and core concepts in two or three dimensions. Lectures and studio periods. (full course)

Art 102

Visual Arts Orientation II

Prerequisite: Art 101. Individual problems in the visual arts. Lectures and studio periods. (full course)

Art 132 (N-232)

Introduction to Architecture and Sculpture (full course)

Art 140 (N-240)

Key Monuments in Art History (full course)

Art 149 (N-249)

Canadian Sculpture and Architecture (full course)

CLASSICS

Classics 121 (N-221)

History of Greece and Rome (full course)

Classics 141 (N-241)

Greek Literature in Translation (half course)

Classics 142 (N-242)

Latin Literature in Translation (half course)

ENGLISH

English 100 (N-200)

English Language (non-credit)

English 101 (N-201)

English Language and Composition (full course)

English 111

The Communication of Ideas

A course in language skills and research techniques for the student who has reasonable control of his writing. The approach will be from the point of view of the writer who seeks a desired response from the audience to whom he addresses himself and of the researcher who must prepare a written account of his work for business or academic purposes. (full course)

English 121 (N-221)

Introduction to English Literature

A course in the development of English literature from Chaucer to the present. (full course)

Students who plan to take a major or honours program in English are strongly urged to take English 121.

English 131

Basic Language Skills

A course in English Composition for students who have problems of expression in written and spoken English. Emphasis will be placed on grammar, sentence structure and other fundamentals of good usage. (half course)

English 132

Writing Themes about Literature

A course in the exploration of the meaning, structure, style, and background influences of literary works, with the aim of teaching students to write unified and well organized analyses on specific elements in those works. (half course)

English 133

The Novel and the Short Story

Selections for study will be grouped around some major theme or idea of particular relevance to the world of today. Specific themes and reading lists will be chosen by individual instructors. (half course)

English 134

Drama and Poetry

Selections for study will be grouped around some central theme of particular relevance to life in the present age. Specific themes and reading lists will be chosen by individual instructors. (half course)

English 161 (N-261)

Introduction to Poetry (half course)

English 166 (N-266)

The Short Story (half course)

FRENCH

French 101 (N-201)

Beginners' French (full course)

French 111 (N-211)

Introduction to College French

Prerequisite: French 101 or equivalent (full course)

French 114 (N-214)

French Language and Composition

Prerequisite: French 111 or equivalent (full course)

French 121 (N-221)

Introduction to French Literature

Prerequisite: French 114 or equivalent (full course)

French 122 (N-222)

Modern French Literature

Prerequisite: French 111 or equivalent (full course)

French 131 (N-331)

French Canadian Literature and Culture

Prerequisite: French 111 or equivalent (full course)

GERMAN

German 110 (N-210)

Introductory Course in German (full course)

German 111 (N-211)

Advanced German Language and Stylistics

Prerequisite: German 141 or equivalent (full course)

German 115 (N-215)

German for Reading Knowledge (full course)

German 141 (N-241)

German Language and Literature

Prerequisite: German 110 or equivalent (full course)

GREEK

Greek 110 (N-210)

Introductory Course in Greek (full course)

Greek 141 (N-241)

Greek Language and Literature

Prerequisite: Greek 110 (full course)

HEBREW

Hebrew 110 (N-210)

Introductory Course in Hebrew (full course)

Hebrew 115 (N-215)

Biblical Hebrew (full course)

Hebrew 141 (N-241)

Intermediate Course in Hebrew

Prerequisite: Hebrew 110, or two years of high school Hebrew or equivalent (full course)

HUMANITIES

Humanities 110

General Course in Humanities

It is the purpose of this course to enlarge and enrich the student's comprehension of his cultural heritage by the study of man as a unique creative being. The sources for this study of man are drawn primarily from the fields of history, philosophy, religion, literature and the arts with a view toward examining those experiences and ideas of enduring power which have shaped the nature of modern man from the age of Greece to the present century. (full course)

ITALIAN

Italian 110 (N-210)

Introductory Course in Italian (full course)

Italian 121 (N-221)

Italian Civilization

Prerequisite: Italian 141, or equivalent, or permission of the Department. (full course)

Italian 141 (N-241)

Intermediate Italian

Prerequisite: Italian 110, or two years of high school Italian, or equivalent (full course)

LATIN

Latin 110 (N-210)

Beginners' Latin (full course)

Latin 140 (N-240)

Latin Composition and Translation (full course)

Latin 141 (N-241)

Latin Literature

Prerequisite: Latin 140 (full course)

LINGUISTICS

Linguistics 121 (N-221)

Introduction to Linguistics (full course)

LITERATURE IN TRANSLATION

Literature in Translation 150 (N-350) (full course)

MUSIC

Music 135 (N-235)

Materials, Structure and Media

Prerequisite: permission of the instructor (full course)

Music 145 (N-245)

Music History and Society (full course)

PHILOSOPHY

Philosophy 110 (N-210)

Problems of Philosophy (full course)

Philosophy 111 (N-211)

Philosophical Classics (full course)

Philosophy 121 (N-221)

Introduction to Logic and Philosophy of Science (full course)

Philosophy 131 (N-231)

Introduction to Ethics (full course)

Philosophy 171 (N-271)

Contemporary Philosophy (full course)

Philosophy 173 (N-273)

Existentialism (full course)

RELIGION

Religion 113 (N-213)

The Religions of the World (full course)

Religion 131 (N-231)

Religion, Ethics and Society (full course)

Religion 141 (N-241)

Religion, Science and Philosophy (full course)

Religion 151 (N-351)

Biblical Studies I: The Hebrew Bible (half course)

Religion 152 (N-352)

Biblical Studies II: The New Testament (full course)

Religion 162 (N-222)

Judaic Studies: The History of the Jewish People (full course)

RUSSIAN

Russian 110 (N-210)

Introductory Course in Russian (full course)

Russian 115 (N-215)

Reading Course in Russian (full course)

Russian 131 (N-231)

Advanced Russian Language and Stylistics

Prerequisite: Russian 141 or equivalent (full course)

Russian 141 (N-241)

Intermediate Russian

Prerequisite: Russian 110 or equivalent (full course)

SPANISH

Spanish 110 (N-210)

Introductory Course in Spanish (full course)

Spanish 121 (N-221)

Spanish Civilization

Prerequisite: Spanish 141 or equivalent (full course)

Spanish 141 (N-241)

Spanish Language and Literature

Prerequisite: Spanish 110 or equivalent
(full course)

C. Social Science Division

ANTHROPOLOGY

Anthropology 111 (N-211)

Introduction to Anthropology (full course)

ECONOMICS

Economics 109 (N-209)

Introduction to Microeconomics (half course)

NOTE: Students who have credit for Economics 111 (N-211) may not take this course for credit.

Economics 110 (N-210)

Introduction to Macroeconomics (half course)

NOTE: Students who have credit for Economics 111 (N-211) may not take this course for credit.

Economics 112 (N-212)

Introductory Economics

Prerequisites: Mathematics 101 and 102
or equivalent (full course)

Economics 130 (N-330)

Introduction to Economic History (full course)

GEOGRAPHY

Geography 101

The Ecology of Man

A general introduction to the relationship between physical and cultural distributions of the earth's surface. Global pattern of human, economic and natural resources will be examined.
(full course)

Geography 111 (N-211)

Introduction to Human Geography (full course)

Geography 171 (N-271)

Introduction to Physical Geography (full course)

HISTORY

History 110 (N-210)

History of Europe in the Modern World (full course)

History 121 (N-221)

History of Canada since 1534 (full course)

History 151 (N-251)

History of the United States (full course)

History 161 (N-261)

Historical and Cultural Background of Modern Asia (full course)

POLITICAL SCIENCE

Political Science 130 (N-330)

Government and Politics of Canada (full course)

Political Science 131 (N-231)

Public Law (full course)

Political Science 140 (N-240)

Comparative Politics (full course)

Political Science 170 (N-270)

International Relations (full course)

PSYCHOLOGY

Psychology 111 (N-211)

Introductory Psychology (full course)

SOCIAL SCIENCE

Social Science 101

Mass Media and Society

This course will study the development of contemporary communication systems and their effect on society. The press and broadcasting will be explored and emphasis will be placed on news reporting, propaganda, etc. The course consists of televised lectures, reading assignments and class discussions. (half course)

Social Science 102

Public Communications in Canada

This course will study the history and develop-

ment of Canadian broadcasting and the part it has played in the growth of the nation.

Televised lectures, reading assignments and class discussions. (half course)

Social Science 110

General Course in the Social Sciences

This course has a dual purpose: to introduce the student to some of the basic concepts and subject matter of the various social sciences and to demonstrate their interrelation; and to provide the student with some knowledge of contemporary society and the social problems which confront it. (full course)

SOCIOLOGY

Sociology 111

Introduction to Sociology

Folkways, mores, roles, status, institution, and culture are the chief concepts discussed. Personality formation, personal disorganization and social change also are dealt with, as are theory, past and current research and historical background. (full course)

Faculty of Science

BIOLOGY

Biology 101

General Biology I

A survey of the general principles of biology; chemical basis of life, cell organization and control, elements of anatomy, physiology, morphogenesis, heredity and evolution. Lectures and laboratories. (half course)

Biology 102

General Biology II

Prerequisite: Biology 101. Comparative anatomy and physiology, genetics, embryology and cellular metabolism. Elements of ecology and field biology. Lectures and laboratories. (half course)

CHEMISTRY

Chemistry 101

General Chemistry I

States of Matter. Atoms. Elements and Isotopes; Atomic Structures. The Electronic Structure of Atoms. The Periodic Table and Chemical Bonding.

Ions in Solution. Lectures, tutorials and laboratories. (half course)

Chemistry 102

General Chemistry II

Covalent Compounds. Chemical Reactions; Mechanism and Kinetics. Special Topics; oriented either to the Biological Sciences, Biochemistry and Chemistry, or to the Physical Sciences, Engineering and Computer Sciences. Lectures, tutorials and laboratories. (half course)

GEOLOGY

Geology 113 (N-213)

Introductory Geology I: Earth Materials (half course)

Geology 114 (N-214)

Introductory Geology II: Earth Processes (half course)

Geology 131 (N-231)

Mineralogy (half course)

MATHEMATICS

General Prerequisite and Equivalents:

The general prerequisite for all Mature Student Qualifying Program Mathematics courses is Mathematics 101. Students will be exempt from this course with high school papers in:

- a) Algebra, Geometry, Trigonometry, Intermediate Algebra; or
- b) Algebra, Geometry, Functions.

Students with good grades in Algebra, Geometry, Trigonometry may apply to the Mathematics Department for exemption.

Mathematics 101

Transcendental Functions

Sets. Field of real numbers. Inequalities. Functions and graphs. Trigonometric, exponential and logarithmic functions. (half course)

Mathematics 102

College Algebra

Pre- or Co-requisite: Mathematics 101 or equivalent. (See "general prerequisite" above). Proofs and implications. The natural numbers and the integers. Mathematical induction. Divisibility, the Euclidean Algorithm, primes, the Fundamental Theorem of Arithmetic

Sequences and progressions. Complex Numbers, polynomials, the Fundamental Theorem of Algebra. Combinatorial Mathematics, the Binomial Theorem. Systems of equations, determinants, Cramers' Rule. (half course)

Mathematics 103

Differential and Integral Calculus I

Prerequisite: Mathematics 101 or equivalent. (See "general prerequisite" above). Functional notation. Limits and continuity. Differentiation of polynomials. The power, product, quotient and chain rules. Implicit differentiation. Higher derivatives. Mean Value Theorem, Rolles's Theorem. Maxima and minima. Applications: tangents to plane curves, related rates. The differential, use in finding approximations. Indefinite and definite integrals, areas and volumes. (half course)

Mathematics 104

Vector Analysis and Analytical Geometry

Prerequisite: Mathematics 101 or equivalent. (See "general prerequisite" above). The Algebra of vectors in two and three dimensional Euclidean vector spaces. Inner and cross products of vectors. Algebraic and vector equations of curves in the plane and in space. Elementary study of surfaces in space. Curves and surfaces in parametric form. Polar, spherical and cylindrical coordinates. (half course)

Mathematics 105

Differential and Integral Calculus II

Prerequisite: Mathematics 103. Differentiation and integration of trigonometric functions. Derivatives of inverse trigonometric functions, Logarithmic functions and exponential functions. Methods of integration by parts, by substitution, by separation into partial fractions. Improper integrals. L'Hopital's theorem. Series: Convergence tests, Maclaurin and Taylor theorems. (half course)

Mathematics 106

Linear Algebra for the Social Sciences

Prerequisite: Mathematics 102. Operations on Matrices. Determinants, Cramers rule. Systems, rank. The inverse matrix. The Gauss Jordan method. Mappings, matrix transformation. Linear transformations. Characteristic value, vectors. Quadratic forms. (half course)

Mathematics 107

Statistics for the Social Sciences

Prerequisite: Mathematics 101 or permission of Department (See "general prerequisite" above).

Elementary Probability, permutations and combinations. Binomial and normal distribution. Analysis and organization of Statistical data. Tests of hypotheses. Confidence limits. Introduction into linear regression and correlation. (half course)

PHYSICS

Physics 101

Mechanics I

Prerequisite: Mathematics 103 previously or concurrently. Kinematics. Newton's Laws of Motion. Statics, dynamics. Conservation of momentum, energy. Periodic motion. Elasticity. Lectures and laboratories. (half course)

Physics 102

Electricity and Magnetism I

Prerequisite: Physics 101. Electric charge, Coulomb's Law. Electric field, potential. Capacitance. Direct current, Ohm's Law. Kirchhoff's Laws. Magnetic field, force on a moving charge. Electromagnetic induction. Lectures and laboratories. (half course)

Physics 103

Waves and Modern Physics I

Prerequisites: Physics 101. Oscillation (simple and damped harmonic motion). Wave propagation. Superposition. Stationary waves. Doppler effect. Interference. Diffraction. Photoelectric effect. Compton effect. Bohr's atom. Radioactivity, fission, fusion. Lectures and laboratories. (half course)

Physics 110

Great Discoveries in Modern Physics (full course)

Faculty of Commerce & Administration

ADMINISTRATION

Administration 101

Introduction to Administration

This course is designed to develop a basic understanding of the role of administration in our society (the efficient organization and employment of people in the techno-structure). (half course)

Administration 102

Perspective on Business

This course is designed to review the historical

development of business (in Canada in particular) and to examine the relationships between the firm (management) and the owners, the employees, the customers, the government and the community. Further, to study some of the problems facing Canadian business today: the de-humanizing aspect, pollution problems, large v.s. small firms, foreign ownership, competition, etc. (half course)

Faculty of Engineering

COMPUTER SCIENCE

Computer Science 111 (N-211)

Introduction to Digital Computer Programming
(half course)

Partial Course Students

Where places are available, after regularly admitted students have been registered, individuals may register on an individual course basis as partial students in courses for which they have the qualifications. Registration dates will be published in the daily press in the month of August.

Administrative Structure

There is no separate administrative structure for the Mature Student Qualifying Program. Each faculty is responsible for its own program and each academic department for the courses which it offers.

Sir George Williams High School

Applicants to the Mature Student Qualifying Program who wish to correct deficiencies in certain disciplines in which they did not matriculate from high school, (for example, Elementary Mathematics), should register for courses in the Sir George Williams Evening High School. Inquiries concerning the High School should be directed to the Headmaster, Sir George Williams High School, 1435 Drummond Street, Montreal 107, Quebec.

For information on regulations, fees, student services, guidance services, etc., see the undergraduate section of this announcement.

Academic Regulations

Academic Regulations

These regulations are effective as of September 1st, 1971 and apply to students entering the three-year university program, MSQP (Mature Student Qualifying Program) and all Partial students. All others are governed by the academic regulations published in the 1970-71 University Calendar.

Academic Year

Winter Session

The day and evening winter session of the university is divided into two terms of fifteen weeks each including the examination period. Dates marking the opening and closing of these terms are found in the Calendar of Events.

Summer Session

A nine-week session is operated during the summer in the Evening Division primarily for Evening Division students.

Summer Sessions and Special Day Summer Sessions are considered part of the following Winter Session for record purposes.

Residence Requirements

1. In addition to the specified courses, there is a residence requirement of one year for any degree, defined as follows:

A student in the Faculties of Arts, Science or Commerce must complete the last five full credits of the courses of the degree requirements at S.G.W.U. Engineering students must complete the final ten half-credit courses of the required departmental degree programs in residence at S.G.W.U.

2. Any student who already possesses one degree must complete, at S.G.W.U., a *minimum* of two years of residence in order to earn a second degree at the Bachelor's level. This regulation applies whether the first degree was earned at S.G.W.U. or at some other university.

3. Any student seeking to transfer to S.G.W.U. after having failed at another university or after having compiled an unsatisfactory record at another university must fulfill the residence requirements stipulated for him if he is admitted. In general, a *minimum* of two years of residence will be required for any degree.

Course Load

Winter Session

Day Division

The course load varies according to the faculty

in which the student is enrolled. Students are advised, however, that a four credit course load is the minimum any Day Division student must carry in any winter session.

ARTS

First year students in the Faculty of Arts will take a maximum of five credits. A student may take six courses during one or both of his final two winter sessions providing:

- a) There are no failures in the previous year (minimum, five-credit program) and,
- b) The average grade of the previous year (minimum, five-credit program) is 'B'.

SCIENCE AND COMPUTER SCIENCE

Students enrolled in the Bachelor of Science or the Bachelor of Computer Science program will normally register for a maximum of five credits each winter session.

COMMERCE

A student may register for a maximum of six courses in any winter session.

ENGINEERING

See under Engineering Faculty - p. 169

Evening Division

Students in this division may register for a maximum of three full credit courses or their equivalent equally divided between the terms.

Summer Session

Students may not take (without permission of their Faculty Council) more than two credits of work during a summer session. This regulation applies to students registering in courses offered in the Evening Division, Special Day Summer Sessions, or in a combined program consisting of courses offered in either division. The course load for Special Day Summer Sessions may be restricted by departmental regulations.

Day students are reminded again that they may not register during the regular evening registration period for the Evening Summer Session unless prior permission of Faculty Council has been granted.

Registration Procedures 1973-74

New undergraduate students are eligible to register for courses provided they have fulfilled all admission requirements and have been formally notified of acceptance. The letter of acceptance will also contain the instructions for proper re-

gistration and must be presented at the time of registration.

EVENING DIVISION: Former undergraduate and partial students of the past academic year will be mailed registration material. All former students not registered for the past academic year and new partial students must obtain appointment cards at the University Records Office. These are available in early August.

All students must register in person or by proxy at the time specified on the Registration Appointment Card. Students who wish to discuss their course selections and programs of study may also do this during the registration period.

Payment of tuition fees is included with the registration process in conjunction with the Office of the Treasurer.

DAY DIVISION: Preregistration is required of all currently registered students who intend to return in September 1973. All day students registered for the 1972-73 academic year will receive by mail all material necessary in February, 1973. New students to the university will be advised by the Admissions Office of the procedures to be followed. The period in which you will plan your program of study with a Faculty Adviser is March 1st to June 29th, 1973.

Course Changes, Additions, Withdrawals

Students may withdraw from a course or from the university without academic penalty prior to the deadlines indicated below. They are required to notify the Records Office in person or in writing and give their reasons for withdrawing. Students must present the copy of their registration contract when making course withdrawals, changes or additions. Failure to attend classes or notification to instructors does not constitute a formal withdrawal from the university.

Final withdrawal date for first-term half courses is November 1. Final withdrawal date for full-year and second-term half courses is March 1. Evening Summer Session course withdrawals must be effected by July 4. For procedures covering financial adjustments, see Fees.

Full Courses

Course changes must be effected by September 21. Evening Summer Session course changes must be effected by June 8.

Half Courses

For the first term and second term, course

changes must be effected within the first week of classes in the appropriate term although second-term courses may also be added during the course change period immediately following fall registration. Note that no half term course may be added after the first week of classes in the appropriate term. Evening Summer Session course changes must be effected by June 8.

Note that section changes are considered course changes and will thus be assessed.

Examinations and Advancement

A university degree certifies that its holder has attained a measurable level of achievement, as established by a recognized system of evaluation. It is consequently required that the performance of each student in each course be evaluated by the instructor (or instructors) responsible for the course.

The final grade which assesses the performance of each student in each course will take into account the total measurable performance of the student in that course. Specifically, the grade will be given on the basis of one or more of the following:

1. Assigned work, term papers, projects, etc.
2. Class participation, which in the case of certain disciplines may justify an attendance requirement.
3. Progress tests.
4. Laboratory tests and/or laboratory work.
5. Mid-term and/or final examinations.

Where appropriate, a level of written expression may be given consideration in determining the final grade.

Grading System

Grades are awarded according to the following system:

Passing Grades

- A Excellent
- B Very Good
- C Acceptable
- D Marginal
- S Credit (late completion of term work or passed supplemental examination)

Failing Grades

- F Failed course - may write supplemental examination if eligible according to failure regulations.
- Inc Term work incomplete - may complete term work if eligible according to failure regulations.

- Abs** Absent from final examination - may write supplemental examination if eligible according to failure regulations.
- F-Inc** Failed course, term work incomplete - may write supplemental examination and complete term work if eligible according to failure regulations.
- Abs-Inc** Absent from final examination, term work incomplete - may write supplemental examination and complete term work if eligible according to failure regulations.
- R** Failed course or absent from examinations, term work incomplete and/or unsatisfactory attendance where applicable - must repeat course for credit if permitted by failure regulations.

All grades remain permanently on the records. All final grades (including F, R, Inc., Abs. whether cleared later or not) are reported on transcripts.

Failure Regulations

Failures

Failures include the grades F, Abs., Inc. and R.

Failed Students

1. Bachelor of Arts, Fine Arts, Science, Commerce and Administration, and Computer Science.

(a) Any student who fails courses equivalent to more than two full credits before obtaining five full credits on record or who fails courses equivalent to more than four full credits before obtaining ten full credits on record is a failed student. To re-register such a failed student must obtain permission from the dean of his faculty.

(b) Any student who fails courses equivalent to more than five full credits is a failed student. Such a failed student may not apply for re-admission.

NOTE: Students transferring from another university or between faculties at this university with previous failures may be subject to adjustments to the permissible number of failures for courses taken at this university. Students will be advised of this adjustment at the time of their transfer.

(c) Failed students may not write supplemental examinations nor complete courses graded Inc.

(d) Failed students who obtain permission to re-

register may be subject to specified course loads at the time of their re-admission.

2. Bachelor of Engineering

(a) Failed students are defined in regulations 2, 6, 7 and 8 under "Additional Regulations in the Faculty of Engineering".

(b) Failed students may not write supplemental examinations nor complete courses graded Inc.

Supplemental Examinations

NOTE: The University Council is presently reviewing the regulations related to supplemental examinations. Any policy changes for the 1973-74 academic year will be published later.

1. A failed student may not write supplemental examinations.

2. A student may not write a supplemental examination in a repeated course, nor may he write a second supplemental examination in the same course.

3. If a student is granted permission to write a supplemental examination, absence from the examination is counted as a failure and recorded as an 'R' grade.

4. Medical reasons (certified by a physician on his letterhead) constitute a valid excuse for exemption from most of the regulations concerning supplemental examinations. Such medical reasons must be submitted to the Examinations Office within ten days of the missed examination.

a) A student absent from a regular examination for medical reasons may, if he wishes, write the supplemental examination as his final examination. If he passes he will receive a letter grade and will not be charged with a failure nor a supplemental under the maximum permissible allowances. If he fails he may apply to the Examinations Office to write an additional supplemental examination.

b) A student absent from a supplemental examination for medical reasons is not considered to have failed the examination and may apply to the Examinations Office for an alternate date.

c) A student taken ill during an examination and unable to complete the examination must obtain verification from the nurse on duty. Such certification must be submitted to the Examinations Office within ten days of the date of occurrence.

5. Supplemental examinations in courses taken during the regular session must be written during

the following July. Supplemental examinations in courses taken during the Summer Session must be written the following December.

6. Supplemental examinations may be written only at one of the following external examination centres in Canada: St. John's, Nfld.; Sackville, N.B.; Murray Bay, Quebec; Montreal, Quebec; Toronto, Ontario; Sudbury, Ontario; Thunder Bay, Ontario; Winnipeg, Manitoba; Saskatoon, Saskatchewan; Banff, Alberta; Vancouver, B.C. Any student wishing to write a supplemental examination at an external centre (outside of Canada) must arrange an appointment with the Director of Examinations before submitting an application.

7. Supplemental examinations are graded only 'S' (pass) or 'R' (fail).

8. Application to write a supplemental must be submitted by November 5 for Summer Session, March 11 for graduating students and June 14 for Winter Session to the Director of Examinations on a form which may be obtained from the Examinations Office. Students applying to write a supplemental examination at an external centre must submit the additional external application form with the regular application form. The required fee must accompany all applications.

Completion of Courses Graded Incomplete

1. A failed student may not complete a course graded incomplete (Inc.).

2. A student is ineligible to complete an 'Inc.' in a repeated course.

3. Application to complete a course graded 'Inc.' must be submitted by October 6 for Summer Session, March 11 for graduating students and June 14 for Winter Session to the Examinations Office. The required fee must accompany all applications. The limiting dates for submission of work are:

- For the first-term courses in the Winter Session, not later than April 1st.
- For all other courses in the Winter Session, not later than August 1st.
- For all courses in the Summer Session, not later than November 1st.

4. Late completions are graded only 'S' (pass) or 'R' (fail) except for medical reasons (see regulations concerning supplemental examinations).

Repetition of Courses

A student who has received credit for a completed course may not repeat that course and may

** Mature Student Qualifying Program*

not write a supplemental for purposes of upgrading, except as provided by the Additional Regulations in the Faculty of Engineering.

Student Request Committees of Faculty Councils

Each of the faculties has a Student Request Committee which is authorized to consider applications from students on matters relating to academic regulations.

The academic regulations for the degree of B.Comp. Sci. shall be the same as those for the Faculties of Arts, Science, and Commerce and Administration. Any undergraduate student seeking adjustment of an academic regulation should apply on the appropriate form available at the following Faculty offices:

Arts & Fine Arts	- Asst. Dean of Arts
Science	- Asst. Dean of Science
Commerce & Administration	- Asst. Dean of Commerce
Engineering & Computer Science	- Asst. Dean of Engineering

MSQP* and Partial Students

MSQP and Partial students, including those taking courses in the Engineering Faculty, are governed by the academic regulations specified for the Faculties of Arts, Science and Commerce and Administration.

MSQP students seeking adjustment of an academic regulation should submit requests to the Student Request Committee of their faculty.

Partial students must submit all requests relating to university regulations to the Registrar and not to a dean or faculty council.

Additional Regulations for the Bachelor of Engineering Degree

The grade point averages in these regulations are defined as follows:

(a) The cumulative grade point average, CGPA, is the ratio of the sum of the grade points obtained in the complete program followed by the student prior to its calculation to the total number of courses in that program, regardless of whether they were taken as a partial course student or as an undergraduate.

(b) The yearly grade point average, YGPA, is the ratio of the sum of the grade points obtained in the program followed by the student during the year under consideration to the total number of courses in that program.

Points are awarded for each grade as described on page 170. Courses taken during a Summer Session are included with those taken during the subsequent Winter Session in calculating the YGPA.

1. After their first year of attendance, students must maintain a CGPA of at least 1.80 to remain in good standing. If their CGPA falls below 1.80, they will be placed on probation for one year during which they must improve it to at least 1.80.
2. Probationary students failing to improve their CGPA to at least 1.80 are failed students and are required to withdraw from the program.
3. Students in good standing who fail one-third or less of the courses taken during the year with a YGPA of at least 1.50 are permitted to write supplemental examinations in courses graded F or Abs. and complete the work in courses graded Inc.

However, the following regulation applies to students receiving an 'F' grade in the Fall-term course of a two-course sequence specified by the Engineering Faculty Council: if such a student is eligible to write supplemental examinations, and if, in the immediately subsequent winter term, he passes the second course of the sequence with a grade of 'C' or better, he will be awarded the grade of 'S' for the first course without further examination. In such specified cases, the regular examination in the second course shall serve also as a supplemental for the first course.

NOTE: Students awarded the R grade in the first course are not permitted to continue in the second in the same academic year.

4. If permitted to write supplemental examinations or complete the work in courses graded Inc. at the end of their first year of attendance, students whose CGPA is below 1.80 at the start of the next Fall term will be placed on probation for one year during which they must improve it to at least 1.80.
5. Students eligible to write supplemental examinations or complete the work in courses graded Inc. and having more than one failure outstanding from the previous year at the start of the next Fall term must repeat all the failed courses and may repeat those in which they received D grades during their previous year of attendance.
6. Students who either (a) fail more than one-third of their courses taken during the year with a YGPA of at least 1.50 or (b) fail one-third or less of their courses taken during the year with a YGPA below 1.50 (this includes students who pass all courses) are failed students. They must

repeat all the failed courses and may repeat those in which they received D grades during their previous year of attendance.

7. Students who fail more than one-third of their courses taken during the year with a YGPA below 1.50 are failed students and must withdraw from the program for at least one year. They may then apply to the Secretary for Engineering Undergraduate Studies for re-admission and, if their application is granted, must repeat all the failed courses and may repeat those in which they received D grades during their previous year of attendance.
8. Students whose CGPA falls below 1.80 after previously being on probation or after previously being required to apply for re-admission are failed students and must withdraw from the program.

Regulations Concerning:

Academic Re-evaluation Conduct During Examinations Plagiarism

Academic Re-evaluation (Collegial and Undergraduate)

1. General

1. Two alternative methods for handling academic re-evaluation are set out below. The first requires the appointment of a moderator for each course in a department. The second requires the appointment of a reader for each application. Each chairman shall decide which system is more suitable for his own department, and so inform the dean of his faculty.

2. Nothing in these regulations shall be taken to proscribe the right of a faculty member or chairman of a department to review a grade upon request by a student before formal application for a re-read or re-evaluation is made.

3. The term "re-read" refers to the process whereby a student appeals against a grade received *within* a course, i.e., for a research paper, or examination. The term "re-evaluation" refers to the process whereby a student appeals against his final grade in a given course.

II. Appointment of Course Moderators

1. A moderator shall be appointed by the department chairman for each course the department offers.

2. The moderator for a course will normally be named from within the university, but should have no responsibilities in the presentation of the course. However, there may be special circumstances which require the appointment of a moderator from outside.

3. To cover adequately multi-sectional courses it may be necessary to appoint several moderators.

4. The responsibilities of the moderator shall be:

- (a) To be aware of the objectives of the course and its evaluation procedure prior to its presentation;

- (b) To be aware of the formal examination paper(s) of the course in the event of a candidate applying for a re-read in it;

- (c) To attend all formal oral examinations in the course;

- (d) To re-read all work representing a major part of the final mark in the course in the event of a candidate applying for a re-read in it.

III. Appointment of Readers

1. A reader shall be appointed by the chairman of the department on the receipt of an application for a re-read. He will normally be named from inside the university, but may be named from outside.

2. The reader shall make himself aware of both the nature and structure of the course and the characteristics of the particular examination.

3. Should the chairman of the department be the instructor of the course, he shall be replaced by the dean.

IV. Re-Reading and Re-Evaluation Procedures

1. The following procedures shall govern the re-reading of examinations whether final or supplementary and the re-evaluation of grades;

2. Any application for a re-read or re-evaluation must be made to the Registrar.

3. An application must be made within 14 days of the release of the grade in question. This delay may be extended in particular cases by the Registrar, but it shall not be extended unless the person applying for a re-read could not reasonably have acted within fourteen days.

4. The application must be submitted to the Registrar's office, and should be presented on the special form obtainable there. It must specify the nature of the re-read or re-evaluation claimed - e.g. for examination or course, and the grounds for the application. The Registrar may require further explanation from the student.

5. The application must be accompanied by a fee of \$10.00, which is refundable if the grade is raised.

6. The Registrar shall file the application, and send a copy to the chairman of the department concerned so that the re-read or re-evaluation can be carried out.

7. The chairman of the department shall then have the re-read or re-evaluation carried out by the course moderator if one has been appointed and is available, or by a reader if a moderator has not been appointed or is unavailable.

8. The re-read or re-evaluation shall be carried out privately, not in the presence of the applicant or his representative.

9. When the moderator or reader has completed the re-read or re-evaluation he shall return the work that he has re-read or re-evaluated to the chairman with his own grade.

10. If the moderator or reader agrees with the original grade, the chairman shall return the paper or papers to the Registrar with a statement to this effect.

11. If the moderator or reader changes the grade, the change should be agreed to by both the instructor who gave the original grade and the chairman before the material is returned to the Registrar. If the instructor is not available, the agreement of the chairman shall suffice.

12. If the original instructor disagrees with the change, the decision as to what grade is to be given devolves on the chairman of the department, who will indicate this fact in his statement to the Registrar.

13. The Registrar shall inform the applicant of the re-read or re-evaluation decision.

14. A grade can be either raised or lowered by a re-read or re-evaluation.

15. The re-reading or re-evaluation procedure should normally be completed within 21 days of the receipt of an application.

16. Either a moderator or a second member of faculty must be present at any formal oral examinations. Application for a re-read or re-evaluation shall be referred to the moderator or the member of faculty who was present at the oral.

17. There is no further appeal once a re-read or re-evaluation decision has been rendered.

18. An application for re-evaluation of a course grade may be refused if the student has not either handed in two copies of all term papers to

the instructor or left the original papers with him.

19. Examination scripts shall be retained on the university premises for a period of six months from the close of the examination period.

20. Department chairmen are responsible for ensuring that examination scripts are available for re-reading, and that an appropriate person is always available to carry out re-reads within the time period established.

V. Notes

1. In order to minimize the number of re-read or re-evaluation applications, any faculty member who has papers graded by a teaching assistant shall personally check all failing papers as well as papers close to the borderline for grades or classes before submitting the results.

2. The student request committees of the various faculties shall not be involved in re-reads or re-evaluations.

Conduct During Exams Collegial and Undergraduate

I. General

1. The candidate taking any form of examination shall not use or attempt to use any material in any form except that which is expressly authorized by those conducting the examination.

2. A candidate shall not speak or otherwise communicate with another candidate or with any person other than the invigilator(s) or instructors except when such communication is expressly authorized by those conducting the examination.

3. Every examination paper shall expressly indicate the materials that a candidate is permitted to have him during the examination, such as text books with notations, text books without notations, slide rules, etc.

4. Every examination paper shall expressly indicate the length of the examination and special conditions, if any, such as permission for students to work together, etc.

5. The invigilators or other persons conducting an examination may at their discretion transfer a candidate from one location in the examination room to another.

II. Cheating

1. Cheating means any dishonest or deceptive practice relating to an examination, and more

particularly, but not restrictively, includes the following:

(a) Making use of any book, paper, script, writing, drawing or anything else not expressly authorized by those conducting the examination;

(b) Communicating during an examination with any person other than one of those conducting the examination for the purpose of obtaining for oneself or providing to another candidate unauthorized assistance in the taking of the examination;

(c) Attempting to do any of the above.

(d) The possession of any unauthorized book, paper, script, writing, drawing or anything else not expressly authorized by those conducting the examination will be accepted as proof of attempting to cheat.

2. A candidate who is to be charged with cheating during an examination shall be so informed by one of the persons conducting the examination, and his taking of the examination shall be suspended forthwith. One of the persons conducting the examination shall take the candidate's examination book, where there is one, as well as any other evidence relating to the charge, and the candidate shall be required to leave the examination room immediately.

3. As soon as is reasonably possible after the examination, the evidence shall be delivered to the Registrar, who, if he deems it appropriate to proceed, shall see that a written charge is prepared and transmit it to the dean of the faculty in which the candidate is registered.

4. The charge shall be made in writing, and must be dated and signed by the person who is making it. The allegations must be stated therein in such a way as to inform the candidate with precision what allegations are being made against him.

5. The dean shall send, as soon as is reasonably possible, a copy of the charge to the candidate, and shall inform the candidate of the procedures and sanctions relating to the charge. The dean shall also ask the candidate, in writing, whether he admits or denies the charge.

6. The candidate shall admit or deny the charge, in writing, within 14 days of the date of its mailing to him at the last address given by him to the university. This delay may not be extended unless the candidate could not reasonably have acted within the 14 days.

7. Where the candidate admits the charge, the dean shall apply the sanction set out below.

8. Where the candidate does not admit or deny the charge as provided above, the dean himself shall conduct a hearing on the charge.

9. Where the candidate denies the charge, the dean shall offer him a choice of:

- (a) a hearing by the dean himself or;
- (b) a hearing by a committee of three persons, selected by the dean from a panel nominated by the candidate's faculty council.

Where the candidate chooses the latter form of hearing, he may choose that the committee consist of three faculty members, or two faculty members and one student, or one faculty member and two students. Where he does not make this choice, the dean shall make it.

10. The candidate has the right to be present at the hearing on the charge.

11. The decision of the dean or of the committee, as the case may be, shall be in writing and shall be a reasoned one. A copy of the decision shall be sent to the candidate.

12. The candidate shall have a right of appeal to University Council against the decision of the dean or of the committee as the case may be. A notice of such appeal shall be made in writing to the Secretary of University Council within 21 days of the decision referred to above. This delay may be extended in exceptional cases by University Council.

13. The appeal shall be heard and decided in the manner deemed most appropriate by University Council.

14. A candidate who admits to having cheated or who is found to have cheated as provided above shall be expelled, or suspended from the university for the remainder of the year and not more than one additional year, such year beginning on September 1st and ending on August 31st if the charge relates to an act occurring in the winter session, and from June 1st to May 31st if the charge relates to an act occurring in the summer session. All credits for courses taken during the full year as described herein shall be cancelled.

15. Should a candidate either admit or be found to have cheated as provided above for the second time he shall be expelled from the university.

16. A sanction of suspension or expulsion as provided above is subject to confirmation by the Principal of the university.

17. Should a charge against a candidate not be proceeded with or upheld, the dean of the candidate's faculty and the Registrar shall take the appropriate steps for the candidate to be evaluated.

18. Wherever reference is made above to a dean or any other official of the university, and the dean or other official is unable to exercise his

functions, the person who is replacing him shall carry out those functions.

Plagiarism (Collegial and Undergraduate)

I. General

1. Plagiarism, for the purposes of these regulations, includes the presentation or submission by a student of another person's work as his own.

II. Procedures and Sanctions

1. If an instructor has reason to believe that a student has committed plagiarism, as defined above, he shall immediately inform the student concerned and discuss the circumstances with him.

2. After such discussion, the instructor shall:

- (a) decide that no further action is necessary, or;
- (b) require that the work be resubmitted with appropriate changes, or;

- (c) give the student an 'R' grade in the course for which the work was done, or;
- (d) refer the matter to the chairman of the department.

3. If the instructor's decision is that set out in 2(a) or 2(b), the matter shall be considered closed. If the decision is that set out in 2(c), the student may appeal it to the chairman of the department.

4. Should a student appeal a decision as set out in 2(c), the chairman of the department shall:

- (a) uphold the award of the 'R' grade, or;
- (b) cancel the 'R' grade, and decide no further action is necessary, or;
- (c) cancel the 'R' grade, and require that the work be resubmitted to the instructor with appropriate changes.

The chairman's decision shall be final.

5. If the matter is referred to the chairman of the department, as set out in 2(d), and an appropriate departmental committee exists, he shall refer it to that committee.

6. If an appropriate committee exists, the committee shall review all the circumstances with the instructor and the student, and shall:

- (a) decide that no action is necessary, or;
- (b) require that the work be resubmitted with appropriate changes, or;

- (c) decide that a formal charge shall be made against the student.

If the committee's decision is that set out in 6(a) or 6(b), the matter shall be considered closed.

7. If the matter is referred to the chairman of the department as set out in 2(d), and no appro-

appropriate departmental committee exists, the chairman shall review all the circumstances with the instructor and the student, and shall:

- (a) decide that no action is necessary, or;
- (b) require that the work be resubmitted with appropriate changes, or;
- (c) decide that a formal charge shall be made against the student.

If the chairman's decision is that set out in 7(a) or 7(b), the matter shall be considered closed.

8. If either the appropriate committee or the chairman of the department decides that a formal charge shall be made against the student, the chairman shall send that charge to the dean of the faculty in which the student is registered.

9. The formal charge to the dean shall be made in writing, and be dated and signed by the chairman of the department. The allegations must be stated therein in such a way as to inform the student with precision what allegations are being made against him.

10. In the event that the instructor is himself chairman of the department, the dean of his faculty shall appoint another member of the department to act in his place.

11. The dean shall send, as soon as is reasonably possible, a copy of the charge to the student and shall inform the student of the procedures and sanctions relating to a formal charge. The dean shall also ask the student, in writing, whether he admits or denies the charge.

12. The student shall admit or deny the charge, in writing, within 14 days of the date of its mailing to him at the last address given by him to the university. This delay may be extended in exceptional cases by the dean, but it shall not be extended unless the student could not reasonably have acted within the 14 days.

13. Where the student admits the charge, the dean shall apply the sanction set out below.

14. Where the student does not admit or deny the charge, the dean himself shall conduct a hearing on the charge.

15. Where the student denies the charge, the dean shall offer him a choice of:

- (a) a hearing by the dean himself, or;
- (b) a hearing by a committee of three persons, selected by the dean from a panel nominated by the student's faculty council.

Where the student chooses the latter form of hearing, he may choose that the committee consist of three faculty members, or two faculty members and one student, or one faculty member and

two students. Where he does not make this choice, the dean shall make it.

16. The instructor and the student have the right to be present at the hearing on the charge.

17. The decision of the dean or of the committee, as the case may be, shall be in writing and shall be a reasoned one. A copy of the decision shall be sent to the instructor and the student.

18. The student shall have the right of appeal to University Council against the decision of the dean or of the committee, as the case may be. A notice of such appeal shall be made in writing to the Secretary of University Council within 21 days of the decision referred to above. This delay may be extended in exceptional cases by University Council.

19. The appeal shall be heard and decided in the manner deemed most appropriate by University Council.

20. A student who admits that he has committed plagiarism or is found to have committed plagiarism as set out in a charge under paragraph 9 shall be expelled, or suspended from the university for the remainder of the year and not more than one additional year, such year beginning on September 1st and ending on August 31st if the charge relates to an act occurring in the winter session, and from June 1st to May 31st if the charge relates to an act occurring in the summer session, or have imposed any of the lesser penalties available to the instructor as set out in 2(b) or 2(c). All credits for courses taken during the full year as described herein shall be cancelled.

21. Should a student either admit to or be found to have committed plagiarism as set out in a charge under paragraph 9, for the second time, he shall be expelled from the university.

22. A sanction of suspension or expulsion as provided above is subject to confirmation by the Principal of the university.

23. Should a charge of plagiarism as set out under paragraph 9 against a student not be upheld, the dean of the student's faculty shall take the appropriate steps to have the work that was the subject of the charge evaluated.

24. Wherever reference is made above to a dean or any other official of the university, and the dean or other official is unable to exercise his functions, the person who is replacing him shall carry out those functions.

1

The university reserves the right to institute additional fees and to adjust existing fees without notice.

Day Division

Arts, regular program of five credits per year and may include up to one lab, studio or problem period. \$450.00

Fine Arts, regular program of five credits per year and may include up to two labs, studio or problem periods. . . . 475.00

Commerce, regular program of twelve half courses in year I and II and ten half courses in year III. May include up to one lab or problem period 450.00

Science, regular program of five credits per year and may include up to three labs or problem periods. 475.00

Computer Science, regular program. . . . 475.00
Engineering I, regular program including labs 525.00

Engineering II, III, IV, regular program of twelve to fourteen courses including labs or problem periods. Fees will be reduced by \$50.00 per course for programs of eleven courses or less and increased by \$50.00 per course for programs over fourteen courses 650.00
Partial students, per course 100.00

Additional Courses

Engineering per half course. 50.00
All others per course. 90.00

Evening Division

Half course. \$ 45.00
Full course. \$ 90.00
Engineering, maximum winter session (including Lab Fees). \$280.00

Other Fees

Day Division:

Students' Association Fee. 20.00
Students' Services Fee. 41.00
Students' Services Fee (Summer). 4.00
Student Faculty Association fees not exceeding \$8.00 per day student are payable in addition to the fees set out above.

Evening Division:

Evening Students' Association Fee (Winter). \$ 5.00

Students' Services Fee. 8.00
Students' Services Fee (Summer). 4.00

Laboratory Fees

Day & Evening Divisions:

For each subject involving a lab, studio or problem period in addition to those included in fees above. \$ 40.00

Miscellaneous Charges

All Divisions:

Application Fee. \$ 10.00
Associate Diploma Fee. 5.00
Course and/or Section Change (per subject). 5.00
Effective Reading Course (registered students). 25.00
Effective Reading Course (others). 85.00
Engineering Certificate. 5.00
Graduation Fee, must be paid by April 1st. 10.00
Copy of Certificate of Registration (additional). 1.00
Late Registration Fee 10.00
Re-reading of paper (refundable if grade is raised). 10.00
Removal of "Incomplete". 10.00
Replacement of Identification Card. 5.00
Special Examination Fee, per paper. 15.00
Special Registration Fee. 10.00
Supplemental Examinations, per paper (written at S.G.W.U.). 10.00
Supplemental Examinations, per paper (written at other Canadian centres). 15.00
Supplemental Examinations, per paper (written at external centers). *15.00
Transcript. 1.00

* Note: — Invigilation fee not included.

Policy on Payment of Tuition Fees

On registration students contract to pay the full tuition fees for the courses selected for the academic year. Any student under 21 years of age must be accompanied by a parent or a guardian who must sign the tuition contract, or he must provide the university with the written consent of a parent or guardian to sign a tuition contract with the university. These contracts are binding and may be cancelled only at the discretion of the Treasurer.

Normally, tuition and other fees are paid in full at the time of registration. Students may apply at registration for permission to pay their fees in instalments. Typical examples of the two and five payment plans which are available are set out as Plans "A" and "B". Minimum deposits as shown must be paid at the

time of registration. Similar arrangements may be granted to students who have been accepted and who have paid \$250.00 for guaranteed admission. All two payment and five payment plans are subject to a deferred payment charge of \$5.00 and \$10.00 respectively. Registration is not considered complete in any case until students have complied with the regulations of the Registrar's Office and have paid the prescribed deposit or have made arrangements for payment, approved by the Treasurer's Office.

All tuition accounts not paid in full on or before October 1st are subject to a deferred payment charge as set out above. All tuition accounts not paid in full by February 28th will be assessed the maximum deferred payment charge of \$10.00.

All contracts are subject to revision for adjustment of errors.

Evening Division Undergraduates

Number of Courses	Total Fees	Plan "A"		Plan "B"	
		On Reg'n	Jan. 2	On Reg'n	4 Monthly Payments Starting Nov. 1
½ Course	\$ 58.00	\$ 35.00	\$28.00	\$ 32.00	\$ 9.00
1 Course	103.00	60.00	48.00	49.00	16.00
1 + 1 lab	143.00	80.00	68.00	57.00	24.00
1½ Courses	148.00	85.00	68.00	62.00	24.00
1½ + 1 lab	188.00	105.00	88.00	90.00	27.00
2 Courses	193.00	110.00	88.00	83.00	30.00
2 + 1 lab	233.00	130.00	108.00	107.00	34.00
2 + 2 labs	273.00	150.00	128.00	139.00	36.00
2½ Courses	238.00	130.00	113.00	112.00	34.00
2½ + 1 lab	278.00	150.00	133.00	140.00	37.00
2½ + 2 labs	318.00	170.00	153.00	152.00	44.00
3 Courses	283.00	155.00	133.00	149.00	36.00

Day Division

Faculty	Total Fees	Plan "A"		Plan "B"	
		On Reg'n	Jan. 2	On Reg'n	4 Monthly Payments starting Nov. 1
Arts	\$519.00	\$300.00	\$224.00	\$189.00	\$ 85.00
Science & Comp. Sc.	544.00	300.00	249.00	210.00	86.00
Fine Arts	544.00	300.00	249.00	210.00	86.00
Commerce	519.00	300.00	224.00	189.00	85.00
Engineering I	594.00	325.00	274.00	220.00	96.00
Engineering II, III, IV	719.00	405.00	319.00	269.00	115.00

Course Cancellations, Withdrawals and Adjustments

1. Any student who cancels a course or withdraws

from the university is required to notify the Records Office in person or in writing as indicated on page 203 and to give his reason for withdrawing. Cancellation of courses or withdrawal from the university does not necessarily entitle a student to refund of fees or cancellation of contract.

2. Evening Division students who cancel a course or withdraw from the university must do so within a two (2) week period (14 calendar days) from and including the date of commencement of the current academic term. In the event of course cancellation within this period, the rebate is 75% of the tuition fee for each full course, 50% of the tuition fee for each half course scheduled in the first term and all of the tuition fee except the registration deposit of \$10.00 for each half course scheduled in the second term. In the case of lab fees the rebate is 50% of the fee. If a student cancels a second-term half course during the first two (2) weeks (14 calendar days) of the second term, the rebate is 50% of the tuition fee and in the case of lab fees the rebate is 50% of the fee. **After the two week period immediately following the beginning of the term (for second-term half courses, immediately following the beginning of the second term) no refunds or adjustments are allowed for any reason.**

3. Full time day students who withdraw within the two (2) week period (14 calendar days) from and including the date of commencement of the current academic term will receive a rebate of 75% of the tuition fees only. However, an applicant who has been accepted and who has paid \$250.00 for guaranteed admission to the Day Division will forfeit this amount in the event that registration is not completed or if the application is withdrawn or cancelled after acceptance, regardless of the reason. If registration is completed and then cancelled, this amount will be kept as a minimum charge. After the two week period following the beginning of the term no refunds or adjustments are allowed for any reason. In the event that less than the regular program of courses is taken the full fee will apply.

Students do not receive any adjustment for cancellation of individual full or half credit courses.

4. In the Day Summer Session no adjustments or refunds are allowed for cancellation of courses made after the start of the session.

5. Failure to attend classes shall not be considered a cancellation of contract.

6. In the event that the university grants a refund, the following fees are not refundable, viz: students' services fees; fees for course changes; late registration; removal of incompletes, supplemental examinations; student societies; mature matriculation; and application fees.

Day or evening students will be charged a registration fee of \$10.00 per subject (full or half course) for cancellation of courses or complete withdrawal before the start of the term.

8. An evening student who has previously obtained special permission to register for more than the normal course load is not granted any adjustment for the cancellation of any courses.

9. Failure to make payments of tuition fees or other amounts owed the university, when they fall due, or to arrange for such payments before their delinquent dates, is considered sufficient cause, until the debt has been adjusted with the Treasurer's Office, to (1) bar the student from classes or examinations, and/or (2) withhold diploma, scholastic certificate, or transcript of record.

10. Full course (.0) fees are not transferable to half courses (.2) nor is any adjustment allowed on full (.0) courses in the second term.

Prizes

Prizes

Graduation Prizes

The Birks Medal awarded annually, when merited, by Henry Birks & Sons (Montreal) Ltd., to the highest ranking graduating student receiving the degree of Bachelor of Arts.

The Mappin Medal awarded annually, when merited, by Mappin's Ltd. of Montreal to the highest ranking graduating student receiving the degree of Bachelor of Science.

The Frosst Medal awarded annually, when merited, by Charles E. Frosst & Co., to the highest ranking graduating student receiving the degree of Bachelor of Commerce.

The Chait Medal awarded annually, when merited, to the highest ranking graduating student receiving the degree of Bachelor of Engineering

The Alfred Pinsky Medal awarded annually, when merited, to the highest ranking graduating student receiving the degree of Bachelor of Fine Arts.

The Computer Science Medal awarded annually, when merited, to the highest ranking graduating student receiving the degree of Bachelor of Computer Science.

The Board of Governors Medals for Creative Work in the Arts awarded annually, when merited, by the Board of Governors of the university to students giving evidence of independent work of outstanding ability in the following categories: visual arts, literary arts; auditory arts; performing arts.

Governor-General's Medal. Presented by His Excellency the Governor-General of Canada, awarded annually to the graduating student showing the highest achievement in the field of English language and literature.

The J.W. Bridges Medal for Psychology awarded annually, when merited, to the graduating student with the highest standing in Psychology. This prize was established by his colleagues of the faculty to honor the outstanding contribution of Dr. J.W. Bridges, Professor Emeritus and former Chairman of the Department of Psychology.

The W. R. Fraser Medal for Philosophy awarded annually, when merited, to the graduating student with the highest standing in Philosophy. This prize was established by his colleagues to honour the outstanding contribution of W.R. Fraser, Professor Emeritus, and former Chairman of the Department of Philosophy.

The Sun Life Prize in Economics awarded annually, when merited, by the Sun Life Assurance Company of Canada, to the graduating student with the highest standing in the Economics honours or major.

The Everett C. Hughes Medal awarded annually, when merited, to the graduating student with the highest standing in Sociology. This prize was established by his colleagues to honour the outstanding contribution of Professor Everett C. Hughes to the development of Sociology in Canada.

The Canadian International Paper Company Prize in Biology, a cash prize of \$100.00 to be awarded annually, when merited, to the graduating student with the best record of work in the field of Biology.

The Ross Medal awarded annually, when merited, by Dr. Howard I. Ross to the graduating student with the highest standing in the Accountancy major.

Merit Award, The Society of Chemical Industry - Canadian Section, awarded annually, when merited, to the student majoring or honouring in Chemistry with the highest standing in the final year of this course.

Association of Alumni Award awarded annually, when merited, to the graduating student, who, in the opinion of the Scholarship Committee, has by his activities, achievements, and interest, during his term at the university, won the outstanding commendation and respect of his fellows and of the faculty.

First Graduating Class Award. The first graduating class of the Faculty of Arts, Science and Commerce, known as the Guinea Pig Club, a name symbolic of their pioneering experience, makes a presentation when merited to a member of the university community who is adjudged to have made the most outstanding new contribution, either academic or extra-curricular, to the student life of the university.

The Robert C. Rae Prize in Applied Social Science awarded annually, when merited, to the graduating student with the highest standing in Applied Social Science.

The Prize for Geography awarded annually, when merited, to the graduating student with the highest standing in Geography.

The Medal for Geology awarded annually, when merited, to the graduating student with the highest standing in Geology.

The Prize for French awarded annually, when merited, to the graduating student with the highest standing in French.

The Prize for History awarded annually, when merited, to the graduating student with the highest standing in History.

The Prize for Humanities of Science awarded annually, when merited, to the graduating student with the highest standing in Humanities of Science.

The Medal for Mathematics awarded annually, when merited, to the graduating student with the

highest standing in Mathematics.

The Prize for Modern Languages awarded annually, when merited, to the graduating student with the highest standing in Modern Languages.

The Medal for Physics awarded annually, when merited, to the graduating student with the highest standing in Physics.

The Herbert F. Quinn Medal for Political Science awarded annually, when merited, to the graduating student with the highest standing in Political Science.

The Boyd Sinyard Prize in Religion awarded annually, when merited, to the graduating student with the highest standing in Religion.

Other Prizes

The Chemical Institute of Canada Prize awarded annually to the best third-year student entering fourth year and majoring in Chemistry.

The Corporation of Professional Chemists of Quebec Prize.

The Montreal Economics Association Award awarded annually to the third-year student with the highest standing in Economics.

Hebrew Culture Organization of Canada Prizes. Samuel Kizell Memorial Prize of \$50.00 awarded annually, for excellence in the study of the Hebrew language.

An additional prize of \$50.00 awarded annually, for excellence in the study of the Hebrew language.

Prix du Département de Français

Prix du Consul général de Suisse

Prix du Consul général de Belgique

Prix du Consul général de France

University Awards Scholarships and Bursaries

Information on all aspects of financial aid including Canada Council grants may be obtained from the Office of the Dean of Students.

Montreal Hi-Y Scholarship: \$150 per year - to a Montreal High School graduate who has been an active member of a Hi-Y Club in his or her final year.

Birks-Beaton Memorial Scholarship: \$150 a year - to a YMCA Fellowship student who has completed at least one year at SGWU.

John W. Ross Memorial Scholarship: \$150 - to a YMCA Fellowship student - in the day division.

Lucille Irvine Memorial Scholarship: awarded annually on the recommendation of the Chairman of the Psychology Department.

Abner Kingman Scholarships: five scholarships of \$50 - to evening students who have attended SGWU for at least one year.

Alvin J. Guttman Scholarship: \$100 annually - to a student from Africa or Asia.

Henry F. Hall Scholarship: awarded annually.

Maynard Metcalf Scholarship: \$100, awarded on the basis of scholastic achievement in the preceding year to a day student.

P.T.R. Pugsley Memorial Scholarship: \$150 annually - financial need and scholastic ability.

Weldon Scholarship: awarded annually to a student in the Faculty of Engineering.

The late Captain Melville Greenshields Scholarship awarded to a student of Art.

Henry I. Chinks Memorial Scholarship or

Bursary: awarded to an evening student of Chemistry on the basis of financial need and academic standing.

Joseph Gilbert Joyce Memorial Scholarship or

Bursary: awarded annually to an evening student on the basis of financial need and academic standing.

F.B. Walls Scholarships and Bursaries: a fund of \$1,000 per year, awarded on the basis of financial need and academic standing.

Marsh and McLennan Centennial Scholarship or

Bursary: awarded annually on the basis of financial need and academic student standing to a student who has completed at least one year at SGWU; preference to a Commerce and Administration student.

Hugh Millar Memorial Scholarship Fund: \$1,000 awarded annually to Engineering students on the basis of financial need and academic achievement.

National Council of Jewish Women (Montreal)

Scholarship: \$100 awarded annually on the basis of financial need and academic standing to an evening student in the Faculty of Arts.

P.E.O. Scholarship: \$50 awarded annually to a female student on the basis of financial need and academic achievement.

Consolidated Bathurst Limited Entrance

Scholarship: \$500 awarded annually, tenable for four years, awarded to an entering day student; preference to the son, daughter or legal ward of a permanent or deceased employee of the company.

Myer F. Pollack Scholarships: awarded annually to needy, worthy students in the Faculty of Engineering.

Nathan H. Messer Scholarships: These two scholarship-bursaries shall be awarded annually to needy, worthy students entering their final year and majoring or honouring in Accountancy, by the University Scholarship Committee following consultation with the Chairman of the Department of Accountancy.

Affiliated Factors Corporation Bursary: \$100 awarded annually to a Commerce student on the basis of financial need and academic standing.

Ethel Campbell - P.E.O. Memorial Bursary: awarded to assist a female student in financing her university program.

Knights of Pythias (Syracuse Lodge No. 9)

Bursary Fund: primarily established to provide assistance to a student during the academic year.

Royal Albert Lodge Bursary: \$400 for scholarships and bursaries; preference to:
a) children of members of the Royal Albert Lodge;
b) children of members of other Masonic Lodges.

St. Andrews Society of Montreal Bursary: \$200 annually to a needy student of Scottish blood or descent.

St. Patrick's Society of Montreal Bursary: awarded annually on the basis of financial need and passing grades.

John Crawford (Administrative Management Society) Bursary: \$100 awarded annually to an evening Commerce and Administration student.

Birks Family Foundation Bursaries: Number and amount depend on funds available from the Foundation, may be renewed annually till graduation.

Theodore Ronis Memorial Bursary: \$50 awarded annually; preference to a male Commerce and Administration student.

Steel Company of Canada Bursary: four-year value of \$2,000 provided satisfactory academic standing maintained, awarded to a student with at least 66% in high school leaving examinations.

Birks-Beaton Memorial Bursary: \$150 awarded annually to a YMCA Fellowship student in first year at SGWU.

S.H. McNeilly Bursary: \$75 awarded annually to a second-year evening student employed by the CPR, based upon financial need and academic achievement.

Walter Stenhouse Bursary: \$75 awarded annually to a fourth year Arts student upon recommendation of the Department of Fine Arts.

IBM - Thomas J. Watson Memorial Bursaries: fund of \$1,000 annually to provide assistance to needy students of good academic standing.

National Council of Jewish Women of Canada Bursary-Loans: made according to financial need. Students expected to undertake to repay grants after graduation.

Sir George - St. Vincent Bursary: awarded annually to a needy and worthy student from St. Vincent.

Joel Birenbaum Memorial Bursary: awarded annually to a needy and worthy Science student.

Ela Moll Memorial Bursary: \$50 awarded annually to a needy and worthy second-year student in the Department of Fine Arts, upon recommendation of the Department of Fine Arts.

Engineering Undergraduate Associate Educational Fund: \$150 awarded annually to a needy and worthy Engineering student.

Uniroyal Limited Aid-to-education Program: awarded annually on the basis of financial need to a student who has completed at least two years at SGWU.

Awards Made Outside of the University

Canadian Federation of the Blind Bursary:

Bursary assistance is awarded to a registered blind person or to the child of a registered blind parent or parents. In awarding this bursary preference will be given to members of the Canadian Federation of the Blind, and in particular, to those persons domiciled in the Province of Quebec.

Mr. Gordon L. McGilton
Corresponding Secretary
Montreal Branch
Canadian Federation of the Blind
1172 St. Matthew Street
Montreal, Quebec

Canadian-Italian Business & Professional Men's Association:

The Canadian-Italian Business & Professional Men's Association created in 1960 a trust fund to assist students of Italian origin or descent to continue their university studies. Applications must be completed before May 31st.

Mr. Dante Panni
Chairman
Trust Fund Committee
Canadian-Italian Business & Professional Men's Association
892 Cr  mazie West
Montreal 303, Quebec

Harry F. Bennett Educational Fund: To make loans to deserving students who need financial assistance to enable them to study Engineering sciences at university level and who have proved themselves by successfully completing their first year in Engineering or the equivalent. The Engineering Institute of Canada
2050 Mansfield Street
Montreal, Quebec

Imperial Oil Higher Education Awards:

Imperial Oil Limited offers annually free tuition and other compulsory fees to all children or wards of employees and annuitants who proceed to higher education courses. Each award is tenable for a maximum of four years. To be eligible, a student must attain an average mark of 70% or higher in the appropriate secondary

school examinations in the subjects required for admittance.

The Secretary

Committee on Higher Education

Imperial Oil Limited

111 St. Clair Avenue West

Toronto 7, Ontario

The Building Trades Joint Committee

Scholarship: A five year scholarship is available to a student entering into the Faculty of Engineering. This award covers full tuition fees for five years subject to a satisfactory academic standing. Applicants must be the sons of employees or employers engaged in the construction industry in the District of Montreal.

Mr. Armand Brisebois

Personnel and Office Manager

The Construction Industry Joint

Committee of the Region of Montreal

3530 Jean Talon Street West

Montreal, Quebec

Leonard Foundation Scholarships: Applications for scholarships must be filed before March 31st of each year. Preference in the selection of students for scholarships shall be given to the sons and daughters of clergymen, school-teachers, Officers, Non-Commissioned Officers and men (active or retired) who have served in Her Majesty's Military, Naval or Air Forces, graduates of the Royal Military College of Canada, members of the Engineering Institute of Canada, members of the Mining and Metallurgical Institute of Canada.

Mr. R.B. White

Senior Trust Officer

Canada Permanent Trust Company

253 Bay Street

Toronto 1, Ontario

Provincial Association of Protestant

Teachers Loan Fund: The student teacher must apply each year, before May 31st preferably, or prior to September 10th. Interest is 6% after the recipient has been teaching for one year. Priority will be given to students applying for a loan for the first time, however, and interview with the Professional Loans Committee is required. No loans will be given without consultation with High School Principals and/or Guidance Officers or (in the case of a second application) with the authorities of the teacher-training institution concerned.

Provincial Association of

Protestant Teachers of Quebec

Professional Loan Fund

2100 St. Mark Street

Montreal, Quebec

Student Life

Student Life

A wide variety of extra-curricular activities is available to students. These activities vary from clubs for students with cultural, social or political interests to a wide range of athletics activities. A co-curricular fund has been established by the U.C.S.L. and a committee will be established to review applications for funds.

The university is a member of the Quebec University Athletic Association and offers the day student an extensive competitive athletics program. An extensive intramural and recreational program is offered by the Athletics Department for day and evening students.

The Day Students' Association, the Evening Students' Association and the Graduate Students' Association offer the student the opportunity of participating in student government. The opportunity for training and development in radio, TV, and the newspaper field is available through the various student-run media.

A feature of student life at Sir George is the University Council on Student Life. The council reports to the Principal and its membership is drawn from various sectors of the university with a majority of student members. The U.C.S.L. recommends policies in major areas of student life. The council also budgets for the special programs and activities.

Student Services

Legal Aid

This service is of an advisory nature, it does not cover the costs of any legal fees that may be incurred. This service is based on a number of alumni lawyers who generously offer their services to students in need of legal advice. Students are strongly urged to refer leases to the Office of the Dean of Students prior to signing. Also, make sure you get your copy of the lease immediately.

Orientation

The orientation program is concerned with introducing the new student to the campus and assisting him or her in resolving any problems that may be encountered in the early stages of contact with the university.

Off-Campus Housing

As there are no residence facilities at this university, the Office of the Dean of Students maintains an off-campus Housing Registry for students seeking accommodations. This Registry represents listings of rooms, room and board,

and apartments. The cost, location and particulars of each listing are included. It is suggested that students refer leases to the Dean of Students office prior to signing.

Student Health and Accident Insurance

This plan is a health and accident policy for the benefit of day students. This group insurance plan is offered on a voluntary basis for students from Quebec and other provinces, and the cost is \$10.00 per student who is eligible for provincial or federal hospital and medical coverage. Overseas students must have the compulsory insurance coverage as required by the university.

Out-of-Country Students

The group health and accident insurance plan is **compulsory** for all out-of country students entering this university. Out-of-country students are not ineligible for basic coverage offered under the Provincial Hospital Insurance Service. The daily hospital allowance is \$50.00 which approximates charges made by local hospitals. The cost of the compulsory insurance program will be approximately \$40.00 for all new out-of-country students and approximately \$52.00 for those, other than new students, enrolling on a voluntary basis.

Chaplains

The Chaplains at Sir George Williams University are appointed and supported financially by their various denominations (Anglican, Jewish, Lutheran, Pentecostal, Orthodox, and Roman Catholic) and are approved by the Dean of Students Office through the Principal of the University. Some are part-time, others full-time, but all of them are concerned with the needs and interests of the students.

Financial Aid

The Office of the Dean of Students maintains staff who are always available to help students solve individual problems or to explain existing programs and regulations.

Quebec Social Allowance

A monthly allowance of \$10.00 is granted to the parent or guardian of all full-time students domiciled in the Province of Quebec and who are between the ages of 16 to 18. For information, please address all correspondence to: The Social Allowances Commission, Department of Family and Social Welfare, Parliament Buildings, Quebec City, Quebec.

Province of Quebec Loan-Bursary Plan

Provincial government assistance is available

in the form of guaranteed loans and bursaries, the amount of which is in accordance with the financial needs of the students. It is important for the student to note that the provincial government operates on the philosophy that the primary responsibility for financing a student's post-secondary education belongs to the student and/or his family. Assistance is provided to supplement family-student resources. Further, it is important to note that to qualify for bursary assistance, the student must first accept a loan.

Deadline

Students must apply prior to September 30, 1973. Registration cards may be obtained from the Office of the Dean of Students or directly from the Student Aid Service. If you applied during the 1972-73 academic year, you will automatically receive an application at the address shown on your 1972-73 form. It is not necessary for you to wait until you are registered before having your form approved by the Office of the Dean of Students.

Eligibility

The student must:

1. Be a full-time student;
2. Be a Canadian citizen;
3. Be domiciled in Quebec and have lived here for a period of one year;
4. Have completed and forwarded his application form prior to the established deadline.

NOTE: Students who have been landed immigrants for a period of one year, and have been living in Quebec for at least one year, are eligible for financial assistance, provided they show proof of intention to remain in Quebec after graduation.

University Bursaries and Scholarships

A number of university bursaries and scholarships are available for students in both the Day and Evening Divisions. A complete listing of these awards and the conditions under which they are awarded is available from the Office of the Dean of Students. The application form must be submitted prior to August 31st of each academic year.

Emergency Loan Fund

The Sir George Williams University Loan Fund is administered on behalf of both the Day and Evening Students' Associations by the Office of the Dean of Students. The fund provides students with short-term financial assistance. The maximum loan is normally \$150.00 for a period not exceeding 90 days. Students are welcome

to use the fund as many times as is necessary; however, they may not have two loans outstanding at any one time.

Health Services

The University Health Centre is located at 2145 Mackay Street. The Center is staffed with Registered Nurses, Monday through Friday from 8:30 a.m. to 10:00 p.m. Appointments to see the doctor may be made by calling 879-4010. The centre can refer students to various specialists and is equipped to give treatment on a first-aid basis for minor injuries and handle emergencies as they arise.

Dean of Students

Magnus Flynn, B.Com.

Assistant Deans

Jack Hopkins, B.A., M.S.W.

Douglas Insleay, M.Sc.

Assistant to the Dean of Students

Joan Richardson, B.A.

Financial Aid Officer

David Ramsay, B.A.

Administrative Assistant

Rhona Rosenberg, B.A.

Guidance Services

Counselling - 879-2879

Personal, Educational, Vocational, Individual appointments, Group programs.

Guidance Information - 879-4443

Collegial, Undergraduate, Graduate Education and career planning information and assistance.

Reading and Learning Skills - 879-2879

Effective Reading Courses, Learning Skills Sessions
Hours as arranged.

Student Placement - 879-2801

Job placement and Career Counselling,
Full time, Part time, Temporary, Collegial,
Undergraduate, Graduate.

2020 MacKay Street, Monday to Friday.

9 a.m. to 5 p.m., Evening hours during winter
as arranged.

Personnel

Director

J.A. Sproule, B.A., M.Ps.Sc.

Assistant Director

F.W. Denton, M.A.

Counsellors

R.C. Boncore, B.A., M.Sc.

J.C. Gellert, B.A., M.Sc.

J. Goldner, B.A., B.Com., B.S.W.

D.P. Kredl, B.A., M.Ed.
 J.J. Skene, B.A., M.Ed.
 D.M. Stehouwer, B.A., M.Ed.
Counsellors, Evening Staff
 B. Bultz, M.A., Ph.D.
 J.G. Eaton, B.A., M.Ed.
 E. Gutbrodt, B.A., Ph.D.
 J. Harder, B.Sc., M.A.
 S.B. Montin, B.A., Ed.M.
Consultant Psychiatrist
 Guy Da Silva, M.D.
Guidance Librarians
 J. Phillips, B.A., M.L.S.
 L. Willis, B.A., M.L.S.
Reading Instructor
 D.P. Osborne, B.A.
Placement Supervisor
 T.B.A.
Placement Counsellors
 O. Rayson
 D. Biggers, B.A.

Athletics

2160 Bishop Street - Tel. No. 879-5840

Intercollegiate Sports

Joseph Roboz, B.A., D.Ph.Ed.

Women's Sports

Jane Tanner

Intramural Sports

Bob Philip, B.A., D.Ed.

Intercollegiate Sports

The university participates in the Quebec University Athletic Association and the Canadian Intercollegiate Association. Both men and women may compete on the varsity level in many different activities. The university has developed national calibre athletes in hockey, basketball, wrestling, track and swimming.

Intramural and Recreational Activities

Intramural hockey is the most popular activity, but modern dance, karate, fencing and special fitness classes are also very popular. The aim of the department is to offer a program for everyone. New activities can be initiated by contacting the Athletics Office.

Y.M.C.A. Memberships

The department offers a special reduced membership to the downtown Y.M.C.A. Students who join may use these facilities on an individual basis. Students must register at the Athletics Department for this reduced membership.

Facilities

The university offers some of its varied programs at the downtown Y.M.C.A. Other facilities used for Intramural and recreational programs are H.M.C.S. Donnacona, Birks Hall and the McGill Winter Stadium. Varsity football can be viewed at the Verdun Stadium, basketball at the Loyola Complex and hockey at Verdun Auditorium.

Cheerleaders and Booster Club

For those who are especially enthusiastic, we have a cheerleading team and booster club activities.

Student Managers and Assistants

If you enjoy working with teams and would like to be a student manager or assistant, contact the department as soon as you register.

Eligibility

Everyone is eligible for intramural and recreational activities, but only full-time day students with satisfactory academic performance may compete in intercollegiate sports. Evening students may compete in varsity club or open activities.

Responsibility of University

It is the responsibility of the student to have proper accident and medical insurance.

Registration and Athletic Information

Students may register for all sports at the department office - 2160 Bishop Street. Athletic notice boards are situated throughout the buildings and the student newspapers usually cover all Georgian events.

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